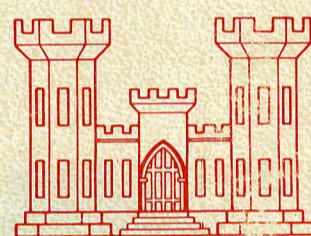


# FORT POLK, LOUISIANA

## TERRAIN ANALYSIS



PREPARED BY

U. S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION

VICKSBURG, MISSISSIPPI 39180

UNDER THE DIRECTION OF

THE TERRAIN ANALYSIS CENTER

U. S. ARMY ENGINEER TOPOGRAPHIC LABORATORIES

FORT BELVOIR, VIRGINIA 22060

APRIL 1978

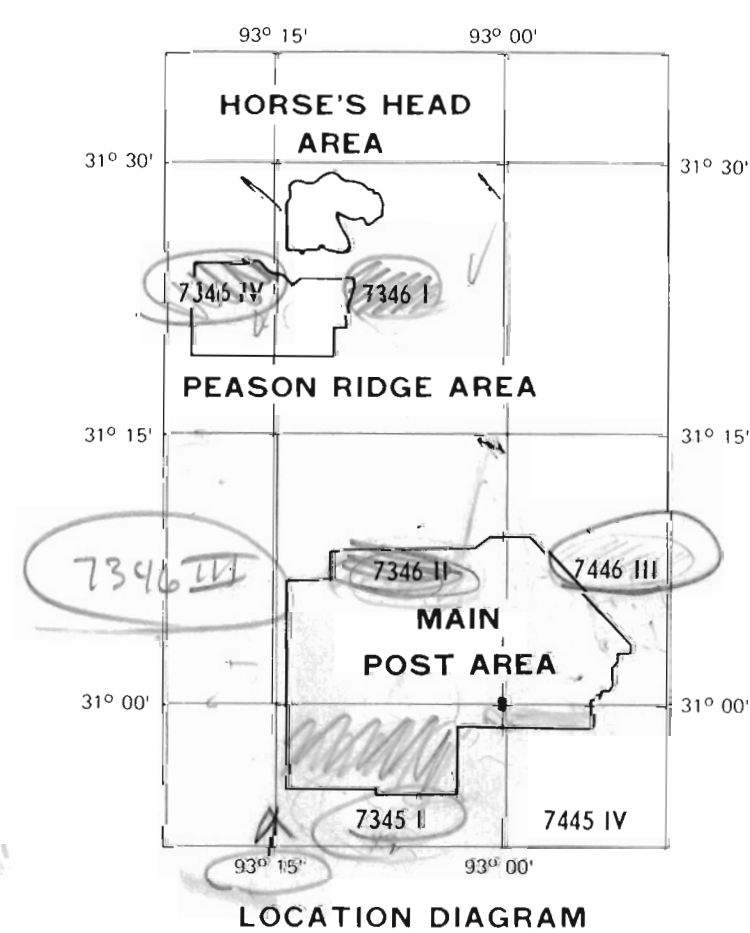
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# FORT POLK, LOUISIANA

## TERRAIN ANALYSIS

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# I. INTRODUCTION

## BACKGROUND

The requirement for this terrain analysis of Fort Polk was stated in message P241854Z, October 1975, from the Commander, U. S. Army Forces Command (FORSCOM), to the Office, Chief of Engineers, U. S. Army (OCE), subject: "Terrain Analysis of Selected FORSCOM installations." The FORSCOM requirement identified the installations, including Fort Polk, and cited topical coverage to be included in the studies. Responsibility for management and supervision of the program developed in response to the FORSCOM requirement was assigned by OCE to the Terrain Analysis Center (TAC), U. S. Army Engineer Topographic Laboratories. At the request of FORSCOM, TAC responsibility also includes technical supervision and direction of FORSCOM troop units assigned to the program.

Scope and content of the topical coverage included in the FORSCOM requirement were developed jointly by representatives of TAC and FORSCOM Headquarters. Analytical and cartographic specifications for the studies were developed by TAC, coordinated with OCE, and concurred in by FORSCOM Headquarters.

The Fort Polk terrain analysis was prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. The analysis was initiated in July 1976 and completed in January 1978, and it was performed according to specifications provided by TAC.

## PURPOSE

In stating the requirement for terrain analyses of selected installations, FORSCOM indicated that the purpose of the program is to assist military planners in future stationing decisions. To achieve this purpose, planners must obtain an appreciation of the nature of on-post terrain including, among many other things, knowledge of the suitability for conducting field training exercises involving maneuverability of troops and military vehicles. The degree of maneuverability that can be achieved is a function of several terrain factors including slope, surface configuration, soils, vegetative cover, and surface drainage, all of which are treated in the studies.

Planners concerned with troop stationing also need certain off-post information such as statistics on housing, schools, hospitals, and public utilities in urban areas near installations, as well as pertinent data on airfields and ports in the vicinity. These topics are also treated in the studies.

Since the program under which this study was prepared is intended to serve troop stationing requirements, the support provided by the program to environmental requirements is only incidental. While some of the information contained in the studies may be useful as environmental baseline data, the studies are by no means complete environmental inventories of the kind required in support of environmental impact assessments.

## SCOPE

The terrain analysis is a compendium of available data on the pertinent natural and man-made features of the Study Area and an evaluation of their effects on tactical military operations. The program does not include basic research to fill gaps in these data, although some short-term field investigations were performed to obtain ground truth and a general overall appreciation of terrain elements. Therefore, the scope of the analysis is limited primarily to those factors which have been documented by other authorities and to the results of analysis and evaluation of those factors by senior terrain analysts for topics such as cross-country movement, cover and concealment, and water resources.

The terrain analysis preparation process has necessarily involved analytical judgement in the selection of pertinent source data, resolution of data conflicts, recognition of interrelationships not previously made explicit, and application of remote sensing to update certain critical, time-variant data such as vegetative cover and man-made features including roads, airfields, and facilities constructed outside of the cantonment areas.

## LIMITATIONS

The study naturally reflects limitations in the quality, amount, and currency of the source data on which it is based. Numerous field interviews and selective use of remote sensing were employed in an effort to assure presentation of the latest and best information.

Within the relatively complex topical scope of the analysis, however, there are a number of aspects on which source data have not been generated with the focus or recency desired to meet objectives fully. As noted under Scope, the terrain analysis program was not designed to include basic research as a means of filling gaps in data.

By design, the presentation is cast at a level of data coverage consistent with stated objectives. Users interested in deeper pursuit of data are referred to the List of Sources.

## PRESENTATION

Maximum use of graphic presentation has been made throughout the terrain analysis. Supporting text is, as far as practicable, in tabular format keyed to the related graphics which follow. The primary map scale is 1:50,000. For Urban Areas (Cantonment Areas), two larger scale maps are used, and for Off-Post Features, the map scale is 1:1,000,000.

## THE STUDY AREA

The Fort Polk Study Area is located in the West Gulf Coastal Plain in the west-central part of Louisiana. Area terrain is rolling and hilly with prominent ridges. Study Area boundary information is shown in some detail on the Orientation Map, page 3. The climate of the Study Area is classified as humid subtropical with long hot summers and mild winters.






The Study Area is comprised of three separate parcels of real estate. The Main Post area consisting of 61,425 hectares (151,780 acres) includes military, Forest Service (both intensive- and limited-use portions), and privately owned lands. The Peason Ridge area consisting of 13,550 hectares (33,490 acres) includes military and intensive-use Forest Service lands. The Horse's Head area encompasses 5,190 hectares (12,820 acres) of limited-use Forest Service land.

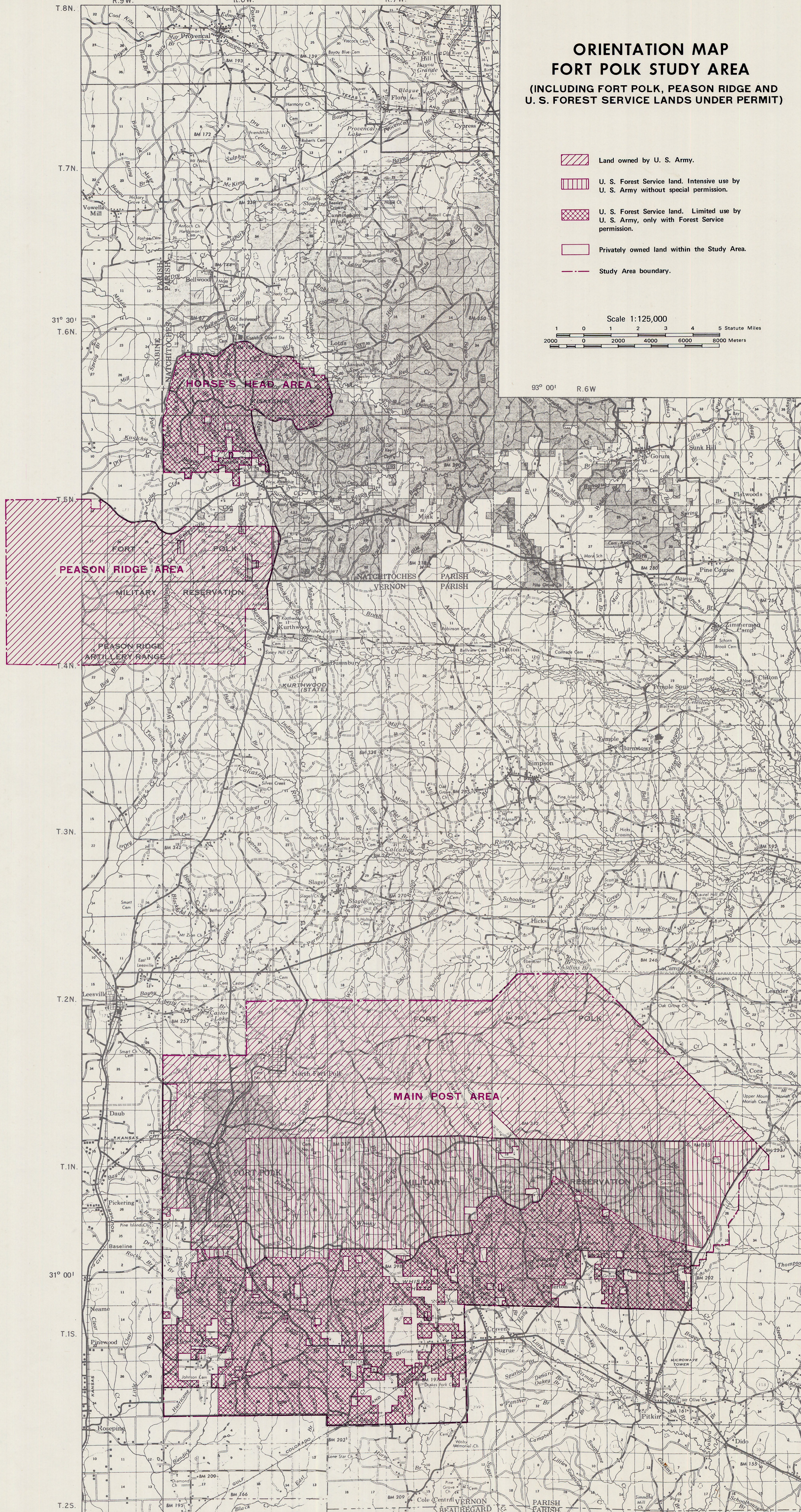
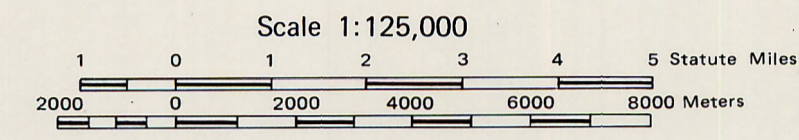
In the Main Post area, flat to gently rolling plains dominate the southern portion, while gently rolling to rolling plains occur elsewhere. Narrow floodplains occur along the major drainageways. The area is predominantly pine-covered. The highest elevation is in the north-central portion, 135 meters (443 feet) above sea level, and the lowest, 49 meters (160 feet), is in the southwest along Drakes Creek. Large deciduous vegetation line the streambanks. Numerous grassy areas are interspersed throughout.

In the Peason Ridge area, rolling hilly plains with prominent ridges predominate. Flat to gently rolling surfaces occur along major drainageways. The area is predominantly pine-covered. The highest elevation, 147 meters (483 feet), is in the south-central portion, and the lowest, 77 meters (254 feet), is on the Long Branch of Odom Creek floodplain. Large open grassy areas occur.

In the Horse's Head area, rolling hilly plains with prominent ridges predominate, and flat to gently rolling plains occur along the major drainage features. The area is predominantly covered by dense mixed coniferous and deciduous trees. The highest elevation, 110 meters (361 feet), is in the west-central portion, and the lowest, 43 meters (140 feet), is on the Sheard Branch floodplain. A small number of open grassy areas occur.

# **ORIENTATION MAP FORT POLK STUDY AREA** (INCLUDING FORT POLK, PEASON RIDGE AND U. S. FOREST SERVICE LANDS UNDER PERMIT)

-  Land owned by U. S. Army.
-  U. S. Forest Service land. Intensive use by U. S. Army without special permission.
-  U. S. Forest Service land. Limited use by U. S. Army, only with Forest Service permission.
-  Privately owned land within the Study Area.
-  Study Area boundary.



II. DESCRIPTION AND MILITARY ASPECTS OF TERRAIN

A. SURFACE CONFIGURATION

The Study Area is situated on rolling and hilly surfaces with scattered prominent ridges in the West Gulf Coastal Plain section of the Coastal Plain physiographic province. Gently rolling to rolling surfaces predominate, separated by flat to gently undulating areas along the major drainage features.

TABLE A1. SURFACE CONFIGURATION

LANDFORM TYPE	LANDFORM DESCRIPTION AND DISTRIBUTION	ELEVATION
Low Plains	Main Post area: Broad, flat to gently rolling plains, east and southeast of the South Fort Polk cantonment area, dominate the southern portion of the Main Post area. Other flat surfaces occur along the floodplains of Whiskey Chitto, Birds, Sixmile, Little Brushy, and Big Brushy Creeks. Gently rolling to rolling plains dissected by the above-mentioned creeks and their tributaries occur elsewhere on the Main Post area. Local relief is largely between 17 and 33 m (56 and 107 ft); lowest relief, 6 m (20 ft) on Drakes Creek floodplain in the south-central portion; highest relief, up to 46 m (150 ft) in the north-central portion. Slopes are largely between 0 and 3 percent on the flat floodplains and between 3 and 30 percent on the gently rolling to rolling surfaces; slopes greater than 30 percent occur in other isolated sections.	Elevations largely between 61 and 111 m (200 and 365 ft) above sea level; lowest elevation, 49 m (160 ft) along Drakes Creek and Whiskey Chitto Creek in the south-central portion; highest elevation, 135 m (443 ft) in the north-central portion.
	Peason Ridge area: Rolling hilly plains with prominent ridges predominate. Flat to gently undulating plains occur along the major drainage features, Dowden, Martin, Comrade, West Anacoco, Odom, and Tiger Creeks. Other sections are characterized by low, well-rounded hilly plains having prominent ridges. Local relief is largely between 18 and 33 m (60 and 108 ft); lowest relief, 11 m (36 ft) between Bull Bay Branch and Comrade Creek floodplains; highest relief, up to 45 m (149 ft) west of Martin Creek in the south-central portion of the Peason Ridge area. Slopes are largely between 0 and 3 percent on the flat to gently rolling floodplains and between 15 and 30 percent on the rolling hilly plains and ridges.	Elevations largely between 91 and 130 m (300 and 425 ft) above sea level; lowest elevation, 77 m (254 ft) on the Long Branch of Odom Creek floodplain; highest elevation, 147 m (483 ft) in the south-central portion.
	Horse's Head area: Rolling hilly plains with prominent ridges predominate. Flat to gently undulating plains occur along the major drainage features, Kisatchie Creek and Caney, Tiger, Saddle, Mike, Hyatt, Simmons, Wilson, Bellwood, Clear, Double, and Sheard Branches. Other sections are characterized by low, well-rounded hilly plains having prominent ridges. Local relief is largely between 24 and 43 m (80 and 140 ft); lowest relief, 12 m (40 ft) on Simmons Branch floodplain; highest relief, up to 49 m (160 ft) south of Sheard Branch. Slopes are largely between 0 and 3 percent on the flat to gently undulating floodplains and between 15 and 30 percent on the rolling hilly plains and ridges.	Elevations largely between 49 and 110 m (160 and 360 ft) above sea level; lowest elevation, 43 m (140 ft) on the Sheard Branch floodplain; highest elevation, 110 m (361 ft) in the west-central portion.

B. SURFACE DRAINAGE

The surface water of the Fort Polk Study Area flows into three drainage basins: the Sabine River System, the Calcasieu River System, and the Red River-Kisatchie Creek System. All of this surface water eventually empties into the Gulf of Mexico.

Main Post area: The Main Post area is mostly within the Calcasieu River System with the exception of a portion of the northwest corner where a few creeks drain into the Sabine River System. The streams of the Calcasieu System generally flow from north to south. The Calcasieu is a part of the Louisiana Natural and Scenic Rivers System. The streams directly associated with this scenic system that originate in the Main Post area are Whiskey Chitto and Sixmile Creeks. There are nine major streams (and numerous tributaries to these streams) that originate in the Main Post area, and eventually empty into the Calcasieu River. There are no natural lakes within the area, but there are several man-made impoundments ranging in size from 0.8 to 14.2 ha (2 to 35 acres). There are some smaller man-made impoundments not shown on the map.

Peason Ridge area: The Peason Ridge area is within the Calcasieu River, Sabine River, and Red River-Kisatchie Creek Systems. There are several streams and numerous tributaries that drain the area. Little Sandy and Odom Creeks drain the northeastern portion and flow north into a branch of Kisatchie Creek that flows east and eventually into the Red River. The Red River is also a part of the Louisiana Natural and Scenic Rivers System. Dowden and Martin Creeks drain the southwestern portion of the area and flow south to form East Anacoco Creek which flows into the Sabine

River. Comrade Creek drains the southeastern portion and flows into the Calcasieu River. There is one man-made impoundment, 6.9 ha (17 acres) in area, located in the Peason Ridge area.

Horse's Head area: The Horse's Head area is drained by several small streams that eventually flow into Kisatchie Creek and then into the Red River. There are no natural lakes within the Horse's Head area, but there are a few small man-made impoundments.

There are no permanent streamflow gaging stations located in the Fort Polk Study Area; however, there is a U. S. Geological Survey partial record station located on Kisatchie Creek in the southeastern portion of the Horse's Head area. The maximum annual discharge from this station during the water year 1975 was 204 m<sup>3</sup>/sec (7200 ft<sup>3</sup>/sec) on 10 June. Stream discharge was determined for 13 locations on the major streams of the Main Post and Peason Ridge areas by the U. S. Army Environmental Hygiene Agency during the periods 4-15 November 1974 and 3-14 February 1975 (Table B3).

The wet season is from December through July. December is the wettest month and October the driest. During periods of heavy rainfall, stream flows may become destructive to roads and bridges. Major floodplain reaches are along Bundick Creek, Whiskey Chitto Creek, Drakes Creek, East and West Forks of Sixmile Creek, and the major tributaries of these creeks. The soils of these areas are poorly drained and frequently flooded.

TABLE B1. DRAINAGE CHARACTERISTICS

DRAINAGE CATEGORIES	GENERAL	REGIME	WIDTH	DEPTH	VELOCITY AND DISCHARGE	BANKS	BOTTOMS
<u>Watercourses</u>							
Calcasieu River Watershed							
Bundick Creek, Drakes Creek, and Birds Creek (all above tributaries of Whiskey Chitto Creek) and Whiskey Chitto Creek, Little Sixmile Creek, West Fork of Sixmile Creek, East Fork of Sixmile Creek, Little Brushy Creek, Big Brushy Creek, and Comrade Creek.	Major perennial streams that originate within the northern boundary of the Main Post area and flow in a southeasterly direction. Channel slopes average 7.6 to 10.7 m (25 to 35 ft) per 1.6 km (1 mile). Comrade Creek is located in the southeastern portion of the Peason Ridge area and flows in a southeasterly direction.	High water, April through July. Receding flows to October, which is the driest month.	Generally about 3.1 to 9.1 m (10 to 30 ft). One section of Hogpen Branch of Bundick Creek immediately south of Louisiana Highway 10 has been widened to about 10.7 to 13.7 m (35 to 45 ft) for a distance of about 0.8 km (0.5 mile).	Generally about 0.3 m (1 ft). Scattered pools considerably deeper.	These streams originate within the Study Area and are generally slow-flowing. Through the improved grounds, water velocity is slowed by check dams, drop inlets, and contour waterways. (See Table B3, Stream Discharge Measurements.)	Mostly sandy silt and sand with some sandy clay. Generally 1.1 to 4.6 m (3.5 to 15 ft) high and steep, reaching 1.57 rad (90°) along many reaches in the northern portion of the Main Post area. In the southern portion, heights are generally 0.5 to 3.7 m (1.5 to 12 ft) and slopes are not as steep as in the northern portion, averaging about 1.13 rad (65°).	Mostly sandy and silty with scattered reaches of sandy clay. Some sandy gravel in the northern reaches of Whiskey Chitto Creek.
Sabine River Watershed							
Bayou Zourie, Liberty Creek, Dowden Creek, Martin Creek, and West Anacoco Creek.	Major perennial streams in the northwestern portion of the Main Post area and the southern portion of the Peason Ridge area.	High water, April through July. Receding flows to October, which is the driest month.	Generally about 3.2 to 9.1 m (10 to 30 ft).	Generally about 0.3 m (1 ft). Scattered pools considerably deeper.	Flow is of a sluggish nature. (See Table B3, Stream Discharge Measurements.)	Mostly sandy silt and sandy clay. Generally 1.1 to 4.6 m (3.5 to 15 ft) high and steep, reaching 1.57 rad (90°) along some reaches.	Mostly sandy and silty with scattered reaches of sandy clay.
Red River Watershed							
Lyles Creek, Little Sandy Creek, Odom Creek, and Kisatchie Creek.	Major perennial streams in the northern portion of the Peason Ridge area and all of the Horse's Head area.	High water, April through July. Receding flows to October, which is the driest month.	Generally about 3.2 to 9.1 m (10 to 30 ft).	Generally about 0.2 to 0.3 m (0.5 to 1 ft). Scattered pools considerably deeper.	Flow is of a sluggish nature. (See Table B3, Stream Discharge Measurements.)	Mostly sandy silt and sand with some sandy clay. Generally 1.1 to 4.6 m (3.5 to 15 ft) high and steep, reaching 1.57 rad (90°) along some reaches.	Mostly sandy and silty with scattered reaches of sandy clay.
Other Streams in All Three Watersheds							
	Mostly perennial tributaries to the major streams and small intermittent streams that form headwaters.	High water, April through July. Some reaches may be dry at times.	Generally about 2.4 m (8 ft).	Generally about 0.2 to 0.3 m (0.5 to 1 ft). Scattered pools considerably deeper.	Most are slow-flowing.	Mostly sandy silt and sand with some sandy clay. Generally 1.1 to 4.6 m (3.5 to 15 ft) high and steep, reaching 1.57 rad (90°) along many reaches.	Mostly sandy and silty with scattered reaches of sandy clay.
<u>Standing Bodies of Water (See Table B2, Reservoirs)</u>							
<u>Wet Areas</u>	Mostly perennial swamps. Located along the southern reaches of the East Fork of Sixmile Creek in the southeastern portion of the Main Post area.	High water, April through July. Low water August through October.	Standing water over small areas. Widths vary with high- and low-water periods.	Generally shallow water.	Water movement is generally imperceptible, and discharge is not measured.	Usually merge into higher terrain.	Mostly sand and silt with some sandy clay.

B. SURFACE DRAINAGE (Continued)

TABLE B2. RESERVOIRS

MAP NO.	NAME	GRID COORDINATES	APPROXIMATE AREA	
			ha	acres
W1	Unnamed pond	853287	2.4	6
W2	Work Center Pond	848281	1.4	3.5
W3	Unnamed pond	792242	0.8	2
W4	Unnamed pond	792224	0.8	2
W5	Unnamed pond	798224	1.2	3
W6	Unnamed pond	794217	1.0	2.5
W7	Unnamed pond	819240	0.8	2
W8	Government Pond	876277	2.0	5
W9	Gravel pit	896280	0.8	2
W10	Unnamed pond	924233	1.0	2.5
W11	Unnamed pond	924224	0.6	1.5
W12	Unnamed pond	929215	0.8	2
W13	Sand pit (blue hole)	953328	3.2	8
W14	Gravel pit	974286	0.8	2
W15	Fullerton Lake	014304	6.9	17
W16	Unnamed pond	028428	1.2	3
W17	Unnamed pond	098364	0.8	2
W18	Unnamed pond	105365	0.8	2
W19	Air Force Lake	733688	6.9	17
W20	Taylor Pond (borrow pit)	856421	0.8	2
W21	Alligator Lake	852455	8.1	20
W22	Infantry Lake	914435	1.6	4
W23	Engineer Lake	929429	14.2	35
W24	Beaver Lake	798406	2.4	6
W25	Armor Lake	889452	1.6	4
W26	Artillery Lake	943443	1.6	4
W27	Unnamed lake	987436	2.4	6
W28	Unnamed lake	951299	3.6	9

TABLE B3. STREAM DISCHARGE MEASUREMENTS

MAP NO.	WATERCOURSE	DRAINAGE AREA ABOVE MEASURING POINT		DISCHARGE		BASIN DISCHARGE	
		km²	miles²	liters/min	gal/day	liters/min/km²	gal/day/mile²
G1	Bayou Zourie	24.14	9.32	--	--	--	--
G2	Liberty Creek	9.66	3.73	--	--	--	--
G3	Liberty Creek	2.02	0.78	--	--	--	--
G4	Bundick Creek	--	--	3,154	1,200,000	--	--
G5	Bundick Creek	21.63	8.35	13,669	5,200,000	632	622,754
G6	Drakes Creek	36.52	14.10	4,416	1,680,000	121	119,149
G7	Whiskey Chitto Creek	75.27	29.06	12,907	4,910,000	171	168,961
G8	Whiskey Chitto Creek	15.02	5.80	552	210,000	37	36,207
G9	Whiskey Chitto Creek	--	--	2,287	870,000	--	--
G10	Birds Creek	68.06	26.28	14,300	5,440,000	210	207,002
G11	West Fork of Sixmile Creek	67.78	26.17	12,381	4,710,000	183	179,977
G12	East Fork of Sixmile Creek	58.95	22.76	9,463	3,600,000	161	158,172
G13	Little Brushy Creek	17.09	6.60	--	--	--	--
G14	Big Brushy Creek	34.40	13.28	6,992	2,660,000	203	200,301
G15	Thompson Creek	4.97	1.92	--	--	--	--
G16	Big Creek	19.16	7.40	--	--	--	--
G17	Dowden Creek	21.52	8.31	8,123	3,090,000	377	371,841
G18	West Anacoco Creek	20.98	8.10	--	--	--	--
G19	Lyles Creek	26.21	10.12	--	--	--	--
G20	Martin Creek	13.78	5.32	13,222	5,030,000	960	945,488
G21	Comrade Creek	11.65	4.50	--	--	--	--
G22	Kisatchie Creek	96.61	37.30	12,231,635	4,653,158,400	126,624	124,749,555
--	Little Sandy Creek *	39.63	15.30	28,994	11,030,000	732	720,915

Note: Discharges for measuring points G1-G21 were determined by the U. S. Army Environmental Hygiene Agency during the periods 4-15 November 1974 and 3-14 February 1975. Values listed are average results for the data gathered at each measuring point.

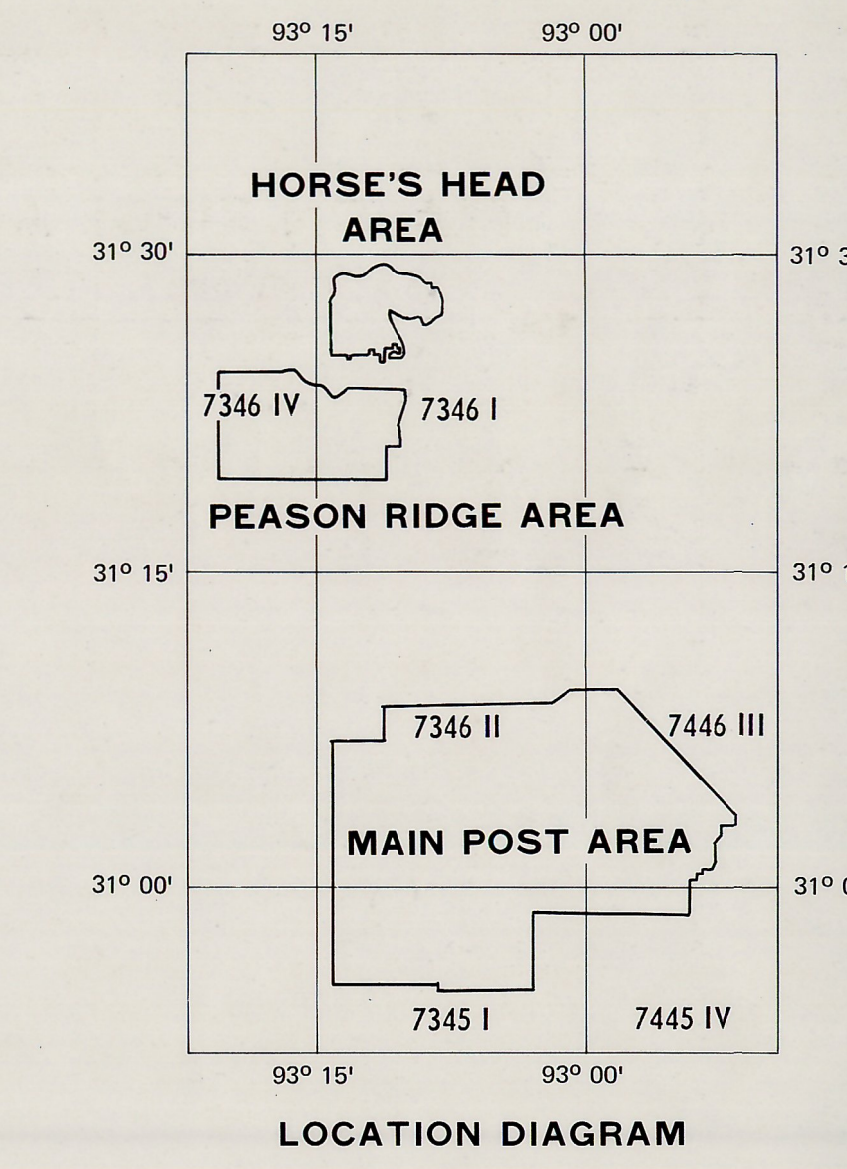
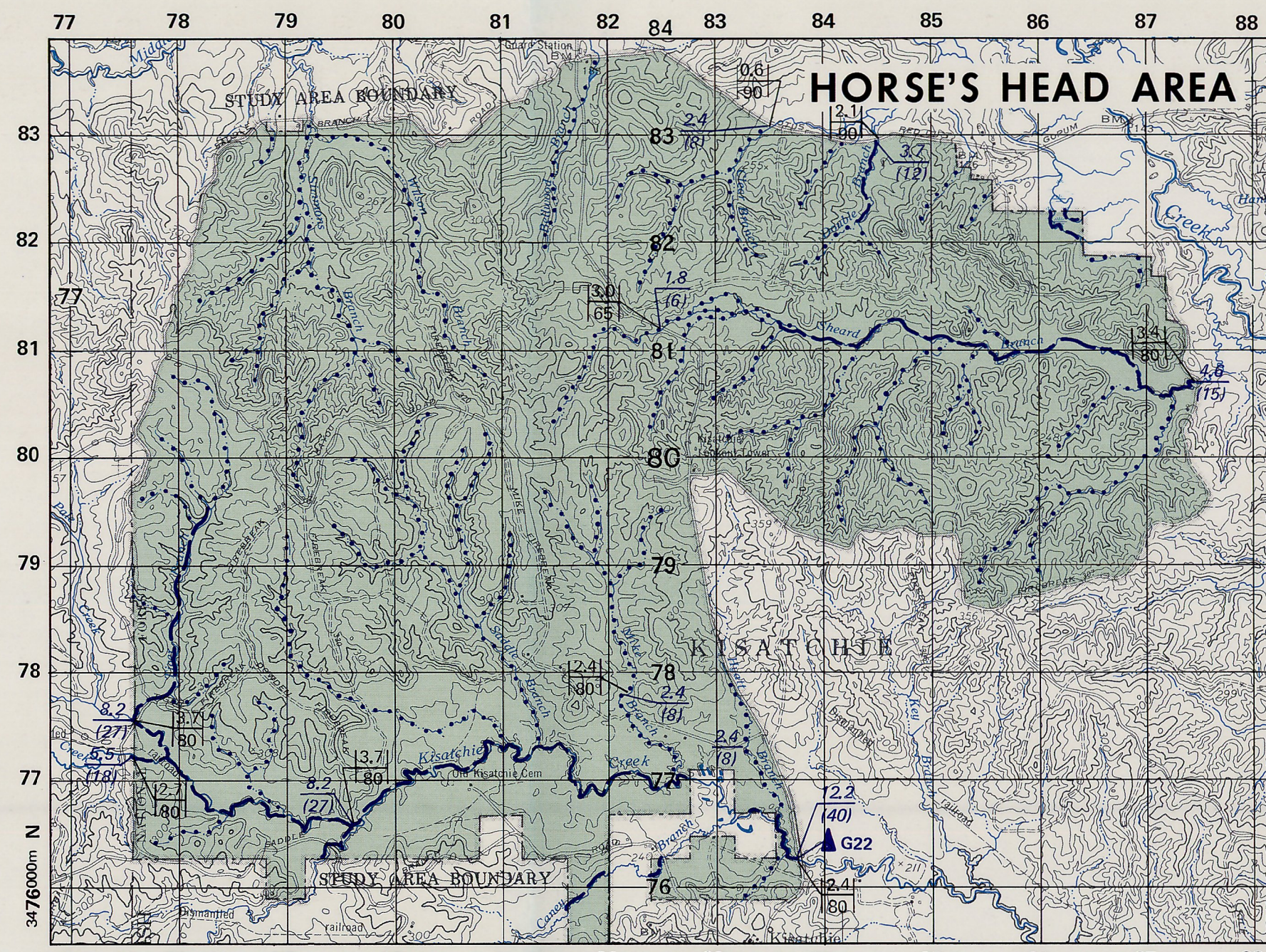
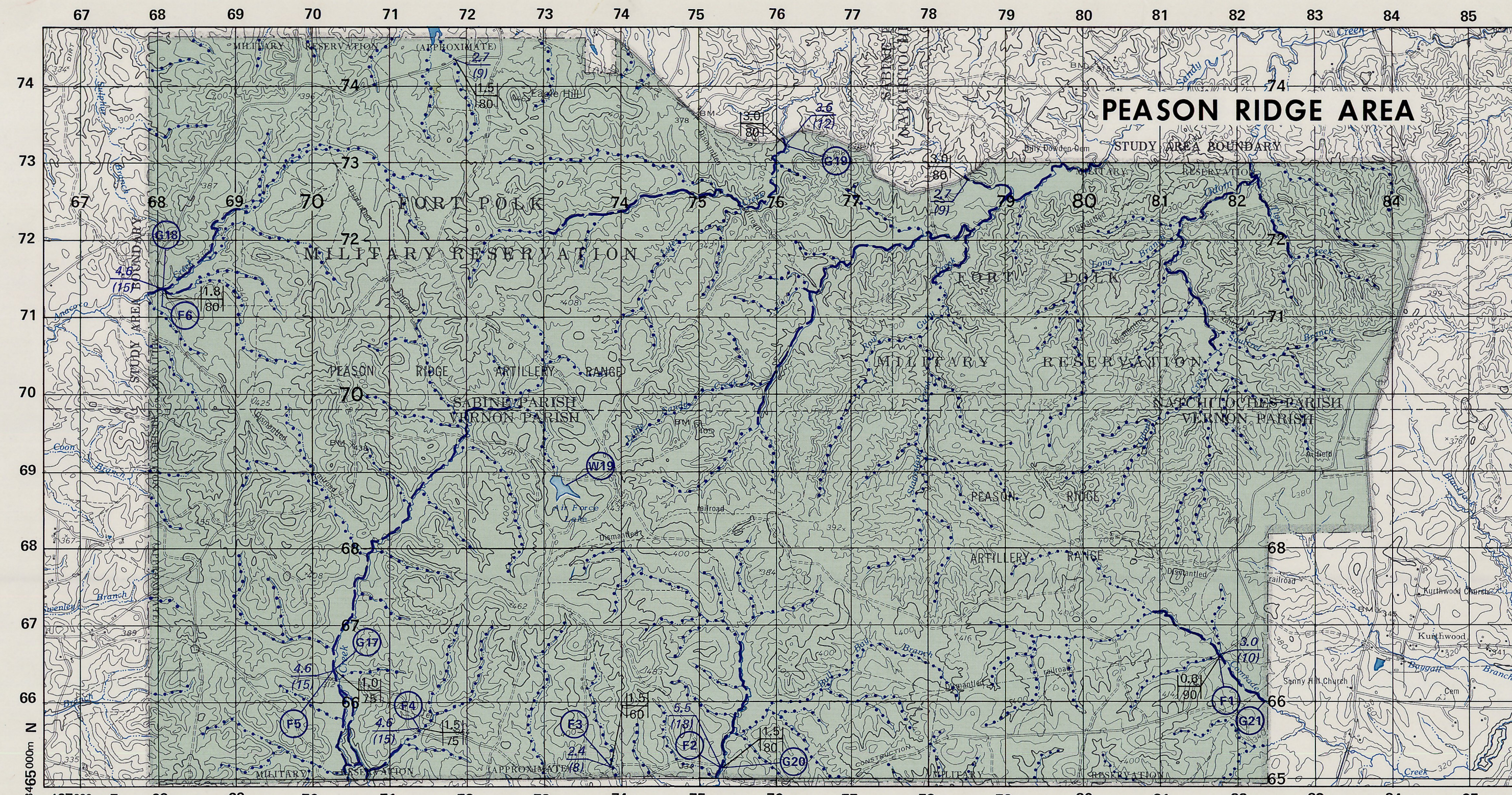
Discharge for Kisatchie Creek (measuring point G22) is from a U. S. Geological Survey partial record station and is the maximum annual discharge on 10 June 1975.

\* This measuring point is outside of the Study Area but is pertinent. It is located 1.6 km (1 mile) from the northeastern edge of the Peason Ridge area at the bridge on Louisiana Highway 117. It includes drainage from Stageland Creek, Row Gully Creek, Long Branch of Odom Creek, Odom Creek, Squirrel Branch, and Tiger Creek, all of which are located in the Peason Ridge area.

TABLE B4. FORDS

MAP NO.	GRID COORDINATES	BOTTOM	APPROXIMATE DEPTH		APPROXIMATE WIDTH		REMARKS
			m	ft	m	ft	
F1	818667	Silty sand	0.45	1.5	3.0	10	Tanks
F2	753651	Sandy	0.45	1.5	5.5	18	Tanks
F3	739651	Sandy	0.30	1.0	2.4	8	Tanks
F4	714656	Logs	0.30	1.0	4.6	15	4-wheel drive
F5	703663	Sandy	0.45	1.5	4.6	15	Tanks
F6	680713	Sandy	0.45	1.5	4.6	15	Tanks
F7	050432	Sandy	0.60	2.0	4.6	15	Tanks

Note: Only fords over larger perennial streams are listed here. There may be others over small, mostly intermittent streams.



# FORT POLK, LOUISIANA

(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

## TERRAIN ANALYSIS

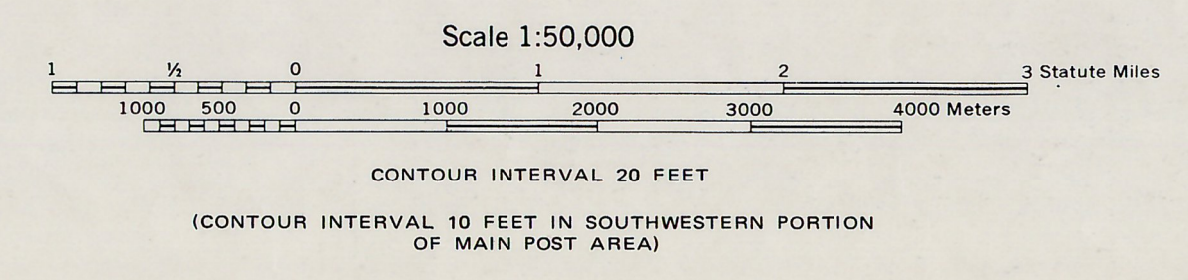
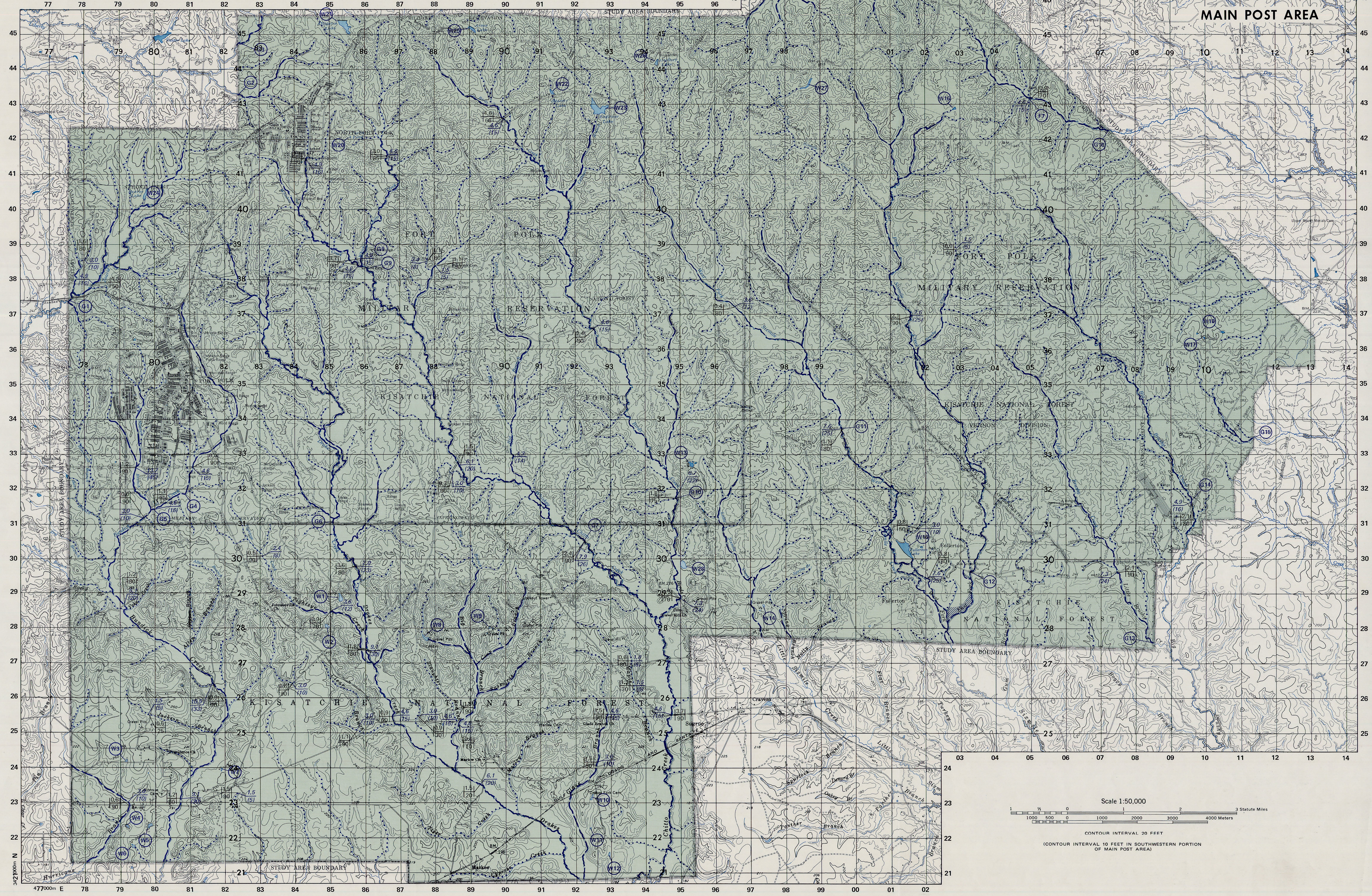
### SURFACE CONFIGURATION

LOW PLAINS Predominantly flat to gently rolling in floodplains and gently to moderately rolling plains elsewhere. Local relief mainly between 17 and 43 m (56 and 140 ft); slopes commonly 0 to 3% in floodplains and 3 to 30% elsewhere.

### SURFACE DRAINAGE

- Watercourse width
  - >25 m (82 ft)
  - 10-15 m (33-49 ft)
  - 3-10 m (10-33 ft)
  - <3 m (10 ft)
- Bank to bank gap width, m/ft)\*
  - 3.6 (12)
  - 2.1 (8)
- Bank height-meters/slope-degrees\*
  - 1.81 (6)
- Location of average discharge measurements 4-15 Nov 1974, 3-14 Feb 1975
  - G1
  - W1
  - F1
- Reservoir
  - W1
- Ford
  - F1
- Swamp
  - W1
- U. S. Geological Survey Partial record station
  - G22

NOTE: Except for point measurements, the data portrayed on this map are based on subjective evaluations. Measured during normal water level, 5-22 Nov 1976, 11-16 Jan 1977.



NOTE: Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia. January 1978.

C. WATER RESOURCES

1. SURFACE WATER

Information on surface water resources is summarized in Table C1. Tables C2 and C3 present drainage and water quality data. No permanent streamflow gaging station is located in the Fort Polk Study Area, although there is a U. S. Geological Survey partial record station on Kisatchie Creek in the southeastern portion of the Horse's Head area. The discharge and water quality data are largely based on measurements made by the U. S. Army Environmental Hygiene Agency during the periods 4-15 November 1974 and 3-14 February 1975, and it is not known whether conditions observed then still exist. Discharges have been recalculated to give discharge per square kilometer and square mile of

drainage area and were used to develop the water categories in this analysis. However, variations in the thickness and permeability of sediments and other factors made it impossible to extrapolate these categories to other drainage areas with confidence. The points at which each water category shown on the map begins and ends depend on variations in flow, and these points move upstream or downstream to reflect daily, seasonal, and annual changes in volume. In general, the high-water period extends from April through July, with receding flows extending into October, the driest month.

TABLE C1. SURFACE WATER RESOURCES

MAP UNIT	SOURCES	QUANTITY	QUALITY	DEVELOPMENT OF SOURCES
1	Liberty Creek, Bayou Zourie, Bundick Creek, Drakes Creek, Whiskey Chitto Creek, Birds Creek, West Fork of Sixmile Creek, East Fork of Sixmile Creek, Little Brushy Creek, and Big Brushy Creek are the major streams located in the Main Post area. These streams are spaced approximately 4.8 km (3 miles) apart. Most sections within the Main Post area are within 4.8 km (3 miles) of one of these streams. The major streams located in the Peason Ridge area are Little Sandy Creek, Dowden Creek, and Martin Creek. These streams are spaced approximately 5.6 km (3.5 miles) apart. Most sections within the Peason Ridge area are within 4.8 km (3 miles) of one of these streams. The major stream in the Horse's Head area is Kisatchie Creek, located in the southern portion. Sections in the northern portion of the Horse's Head area are within 6.4 km (4 miles) of this stream.	Minimum yields range from 4,000 to 40,000 liters/min (1,500,000 to 15,000,000 gal/day) at the beginning of the wet season. During periods of high-intensity rainfall, quantities of water are much greater. During the dry season, minimum yields for all these streams would be less than those indicated above.	Below the South Fort Polk wastewater treatment plant, Bundick Creek had been damaged to a considerable extent by sewage effluent. The quality of Whiskey Chitto Creek had been degraded by the North Fort Polk wastewater treatment plant. With the exception of streams receiving sewage effluents, the streams were found to be of moderate to good quality. The westernmost streams which are closest to the cantonment areas had suffered light to moderate degradation from increased suspended solids due to increased erosion in the maneuver areas and the small arms ranges. The easternmost streams appeared to be in exceptionally good biological condition. The streams of the Peason Ridge area were found to be generally of good quality but degraded somewhat by increased runoff caused by military activity. No data were available for individual streams in the Horse's Head area; however, they would probably be of the same quality as those in the Peason Ridge area but would have less turbidity because of limited military activity. (See Table C3 for additional data.)	Access to these streams is hindered by dense brush, deciduous vegetation, and steep undercut banks. Off-road access to streams is also hindered by soft soil conditions along the drainageways. Velocities on all of these streams will be greater after rainfall, especially during high-water periods, and may be destructive to pump installations.
2	Upper reaches of Bundick and Whiskey Chitto Creeks and possibly the upper reaches of other major streams.	Bundick Creek (measuring point G4) and Whiskey Chitto Creek in the vicinity of the North Fort Polk cantonment area (measuring point G10) yield from 400 to 4,000 liters/min (150,000 to 1,500,000 gal/day) at the beginning of the wet season. No data were available for the dry season.	The waters of Bundick and Whiskey Chitto Creeks were only of marginal quality. In general, the streams closest to the cantonment areas suffer light to moderate degradation from limited watershed disturbances.	Access to these streams is hindered by dense brush, deciduous vegetation, and steep undercut banks. Off-road access to streams is also hindered by soft soil conditions along the drainageways.
3	Sources are, for the most part, south-flowing tributaries of secondary streams and associated ponds. Hogpen Branch, Bear Branch, Rocky Branch, Yoke Creek, Allen Branch, Hurricane Branch, and Jackson Branch are all tributaries of Bundick Creek. Tightlye Creek, Clear Branch, Big Branch, Marlow Branch, Tiger Creek, and Cypress Creek are all tributaries of Drakes Creek. Big Branch and Maple Branch are tributaries of Whiskey Chitto Creek. Little Sixmile Creek and Spring Branch flow into Sixmile Creek outside the Study Area. Thompson Creek flows into Tenmile Creek outside the Study Area. Big Creek flows into the Calcasieu River outside the Study Area. These streams are spaced 0.8 to 4.8 km (0.5 to 3 miles) apart. Streams included in this category and located in the Peason Ridge area are West Anacoco Creek, Comrade Creek, Long Branch of Odom Creek, and Tiger Creek. These streams are spaced approximately 4.8 km (3 miles) apart. Streams in the Horse's Head area are Tiger Branch, Saddle Branch, and Sheard Branch. These streams are spaced approximately 4.0 to 6.4 km (2.5 to 4 miles) apart.	No data were available for individual streams. Based on regional factors, it is estimated that minimum yields range from 40 to 400 liters/min (15,000 to 150,000 gal/day) during low-water periods. During periods of high-intensity rainfall, quantities of water are much greater. It is possible that the upper reaches of some streams in the above category are included in this group since most of the above streams originate in the Main Post area.	No data were available for individual streams. Based on regional factors, it is estimated that natural stream waters are soft and of excellent biological quality. Total dissolved solids are acceptable for domestic supplies. The water is slightly corrosive. Suspended sediment load would be excessive after periods of high-intensity rainfall. The waters are suited for most uses after treatment.	Access to these streams is hindered by dense brush, deciduous vegetation, and steep undercut banks. Off-road access to streams is also hindered by soft soil conditions along the drainageways.
4	Upper reaches of streams, generally shown as intermittent streams on topographic maps. Information on sources in this category is sparse; stream volume and distance over which the category is delineated depend on presence of springs, volume of spring flow, and volume of base flow from ground water. These streams are generally less than 0.5 km (0.3 mile) apart. Also included in this category are small ponds widely scattered throughout the Study Area. Seeps and springs are found in nearly every draw, on many slopes, and in roadside ditches.	In the drainageways and gullies leading from the divides, flows are present only during and for a few hours after rains. Downstream, water may persist as a trickle throughout the wet period, with flows of generally less than 4 liters/min (1500 gal/day); water may be present as a series of pools; or the channel may be dry. During periods of high-intensity rainfall, flows may exceed 4 liters/min (1500 gal/day) temporarily. During dry periods, yields are reduced and most channels are dry except for those affected by occasional rains and those that are spring-fed. After heavy rainstorms, yields may exceed 4 liters/min (1500 gal/day) temporarily.	No data were available for individual streams. Based on regional factors, it is estimated that natural stream waters are soft and of excellent biological quality. Total dissolved solids are acceptable for domestic supplies. The water is slightly corrosive. Suspended sediment load would be excessive after periods of high-intensity rainfall. The waters are suited for most uses after treatment.	Access to these streams is hindered by dense brush, deciduous vegetation, and steep undercut banks. Off-road access to streams is also hindered by soft soil conditions along the drainageways.

TABLE C2. STREAM DISCHARGE MEASUREMENTS

MAP NO.	STREAM	DRAINAGE AREA ABOVE MEASURING POINT		DISCHARGE		BASIN DISCHARGE		MAP NO.	STREAM	DRAINAGE AREA ABOVE MEASURING POINT		DISCHARGE		BASIN DISCHARGE	
				liters/min	gal/day	liters/min/km²	gal/day/mile²					liters/min	gal/day	liters/min/km²	gal/day/mile²
G1	Bayou Zourie	24.14	9.32	--	--	--	--	G15	Little Brushy Creek	17.09	6.60	--	--	--	--
G2	Liberty Creek	9.66	3.73	--	--	--	--	G16	Big Brushy Creek	34.40	13.28	6,992	2,660,000	203	200,301
G3	Liberty Creek	2.02	0.78	--	--	--	--	G17	Thompson Creek	4.97	1.92	--	--	--	--
G4	Bundick Creek	--	--	3,154	1,200,000	--	--	G18	Big Creek	19.16	7.40	--	--	--	--
G5	Bundick Creek	21.63	8.35	13,669	5,200,000	632	622,754	G19	Dowden Creek	21.52	8.31	8,123	3,090,000	377	371,841
G8	Drakes Creek	36.52	14.10	4,416	1,680,000	121	119,149	G20	West Anacoco Creek	20.98	8.10	--	--	--	--
G9	Whiskey Chitto Creek	75.27	29.06	12,907	4,910,000	171	168,961	G21	Lyles Creek	26.21	10.12	--	--	--	--
G10	Whiskey Chitto Creek	15.02	5.80	552	210,000	37	36,207	G22	Martin Creek	13.78	5.32	13,222	5,030,000	960	945,488
G11	Whiskey Chitto Creek	--	--	2,287	870,000	--	--	G23	Comrade Creek	11.65	4.50	--	--	--	--
G12	Birds Creek	68.06	26.28	14,300	5,440,000	210	207,002	G24	Kisatchie Creek	96.61	37.30	12,231,635	4,653,158,400	126,624	124,749,555
G13	West Fork of Sixmile Creek	67.78	26.17	12,381	4,710,000	183	179,977	--	Little Sandy Creek*	39.63	15.30	28,994	11,030,000	732	720,915
G14	East Fork of Sixmile Creek	58.15	22.76	9,463	3,600,000	161	158,172								

Note: Discharges for measuring points G1-G23 were determined by the U. S. Army Environmental Hygiene Agency during the periods 4-15 November 1974 and 3-14 February 1975. Values listed are average results for the data gathered at each measuring point.

Discharge for Kisatchie Creek (measuring point G24) is from a U. S. Geological Survey partial record station and is the maximum annual discharge on 10 June 1975.

\* This measuring point is outside of the Study Area but is pertinent. It is located 1.6 km (1 mile) from the northeastern edge of the Peason Ridge area at the bridge on Louisiana Highway 117. It includes drainage from Stagestand Creek, Row Gully Creek, Long Branch of Odom Creek, Odom Creek, Squirrel Branch, and Tiger Creek, all of which are located in the Peason Ridge area.

TABLE C3. ANALYSIS OF SURFACE WATER

MAP NO.	SOURCE	DATE	DISCHARGE		TEMPERATURE °C	TEMPERATURE °F	COLIFORMS No. per 100 milliliter	TURBIDITY JTU	BOD, mg/liter	pH (Units)	CONSTITUENT, mg/liter*									
			liters/min	gal/day							DISSOLVED OXYGEN (DO)	MERCURY (Hg)	LEAD (Pb)	IRON (Fe)	CALCIUM (Ca)	SULFATE (SO <sub>4</sub> )	CHLORIDE (Cl)	NITRATE (NO <sub>3</sub> )	TOTAL DISSOLVED SOLIDS (TDS)	HARDNESS (CaCO <sub>3</sub> )
G4	Bundick Creek	4-15 Nov 74	3,154	1,200,000	14	57	--	41	1	6.7	8.0	0.0039	0.013	6.0	10.4	16	14.6	0.82	67	23
G5	Bundick Creek	4-15 Nov 74	13,669	5,200,000	16	61	--	42	9	7.0	6.5	0.0018	0.031	5.0	18.9	22	27.0	1.00	170	30
G5	Bundick Creek	3-14 Feb 75	--	--	12	54	8	29	8	6.1	8.1	--	--	--	--	0.1	14.0	--	96	--
G6	Hogpen Branch	3-14 Feb 75	--	--	8	46	1341	30	5	7.1	9.6	--	--	--	--	0.1	10.0	--	26	--
G7	Bundick Creek	3-14 Feb 75	--	--	11	52	8	41	6	7.2	8.4	--	--	--	--	0.1	11.0	--	56	--
G8	Drakes Creek	4-15 Nov 74	4,416	1,680,000	14	58	--	43	1	5.9	7.6	0.0018	ND	2.5	2.3	10	9.0	0.47	49	14
G9	Whiskey Chitto Creek	4-15 Nov 74	12,907	4,910,000	14	57	--	40	1	6.4	7.8	0.0019	0.136	7.5	10.0	25	11.0	0.67	62	17
G9	Whiskey Chitto Creek	3-14 Feb 75	24,184	9,200,000	7	45	288	25	5	6.2	8.5	0.0003	0.013	1.6	4.7	1	8.0	0.83	34	37
G10	Whiskey Chitto Creek	3-14 Feb 75	552	210,000	11	52	1788	43	4	7.1	10.1	0.0003	0.007	2.7	25.5	5	11.0	0.30	109	80
G11	Whiskey Chitto Creek	3-14 Feb 75	2,287	870,000	13	55	1	37	4	7.3	9.6	0.0003	ND	1.2	28.5	9	31.0	1.22	266	91
G12	Birds Creek	4-15 Nov 74	14,300	5,440,000	14	57	--	22	1	5.9	7.3	0.0010	ND	3.3	2.0	20	7.0	0.42	40	7
G13	West Fork of Sixmile Creek	4-15 Nov 74	12,381	4,710,000	14	57	--	11	1	5.8	8.1	0.0014	ND	2.7	1.3	9	6.3	0.39	36	4
G14	East Fork of Sixmile Creek	4-15 Nov 74	9,463	3,600,000	14	57	--	7	1	5.6	8.3	0.0038	ND	0.5	ND	11	5.7	0.26	30	7
G16	Big Brushy Creek	4-15 Nov 74	6,992	2,660,000	14	57	--	7	1	5.5	7.0	0.0137	ND	1.4	0.9	9	6.4	0.28	25	4.5
G19	Dowden Creek	3-14 Feb 75	8,123	3,090,000	11	52	210	14	4	5.7	9.3	0.0002	0.040	0.58	ND	1	7.0	0.20	15	6
G22	Martin Creek	3-14 Feb 75	13,222	5,030,000	11	52	295	16	6	5.9	8.9	0.0005	0.027	0.67	0.8	<0.1	6.0	0.16	21	13
--	Little Sandy Creek**	3-14 Feb 75	28,994	11,030,000	12	54	274	22	5	6.0	10.2	0.0003	0.008	0.67	1.4	2	6.0	0.21	37	12

Note: This analysis is based on a surface water quality survey made by the U. S. Army Environmental Hygiene Agency during the periods 4-15 November 1974 and 3-14 February 1975. Values listed are average results for the data gathered at each measuring point.

\* For the purposes of this terrain analysis, milligrams per liter may be considered equivalent to parts per million. ND in this section of the tabulation indicates "not detected."

\*\* This measuring point is outside of the Study Area but is pertinent. It is located 1.6 km (1 mile) from the northeastern edge of the Peason Ridge area at the bridge on Louisiana Highway 117. It includes drainage from Stagestand Creek, Row Gully Creek, Long Branch of Odom Creek, Odom Creek, Squirrel Branch, and Tiger Creek, all of which are located in the Peason Ridge area.

## 2. GROUND WATER

Good quality ground water is abundant everywhere in the Fort Polk Study Area. Recent alluvial deposits along streams may be used as sources of water during field exercises and maneuvers, or they may be used as water sources for farms and homes as has been done in various locations near the Study Area. Dipping geologic formations or members of formations are the primary sources of ground water in the Study Area. Ground water exists in the formations under static and artesian conditions. The Williamson Creek and Carnahan Bayou Members of the Fleming Formation, the Catahoula Formation, and the Cockfield Formation are the water-bearing geologic strata of interest.

The Williamson Creek Member is the uppermost aquifer and outcrops diagonally across Vernon Parish. It dips and thickens toward the southeast, as do most of the geologic formations in the area. Lithology of this member is uniform and consists of poorly sorted gray silt locally indurated into lenticular masses of friable siltstone. Particles ranging from clay to coarse sand size occur mixed with the silt.

The Carnahan Bayou Member outcrops in northern and northwestern Vernon Parish; it also dips and thickens toward the southeast. Gray clay, silt, and sand sporadically consolidated into shale, siltstone, and sandstone constitute this member.

The Catahoula Formation is of the Tertiary Period, Basal or Lower Miocene Age. The formation underlies Vernon Parish and outcrops near its extreme northwest boundary. Light gray massive siltstone dominates the formation, but thin-bedded siltstone, fine- and coarse-grained sandstone, unconsolidated sand, silt, clay, and bentonite are present.

The Cockfield Formation is the lowermost aquifer of interest. It also dips toward the southeast and consists of interbedded sand, silt, and clay. This formation is only of interest in the Horse's Head and Peason Ridge areas where it occurs at depths that may be found economically feasible for well construction.

Table C4 presents a summary of data on ground water resources throughout the Fort Polk Study Area; Table C5 presents data on ground water quality in the Study Area; and Table C6 presents a summary of well characteristics in the Main Post area. Stratigraphic relationships and depths are shown in the geologic cross sections opposite.

No springs were found in the Study Area.

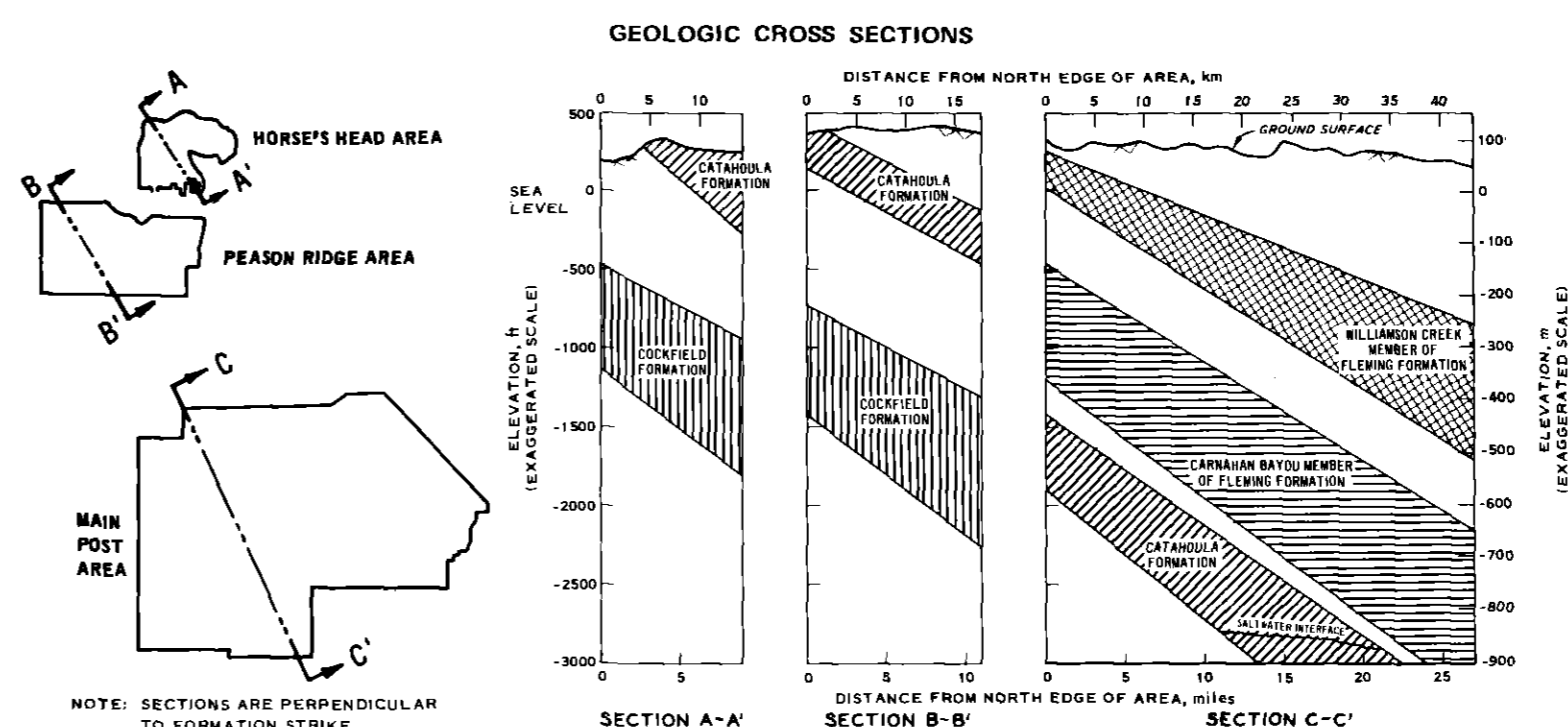


TABLE C4. GROUND WATER RESOURCES

MAP UNIT	QUANTITY AND SOURCE	DEPTH	QUALITY	DEVELOPMENT OF SOURCES
1	The Carnahan Bayou Member of the Fleming Formation is approximately 25 percent sand with higher percentages toward the south. Sand bed thickness varies to a maximum of about 21 m (70 ft). Generally, the sands are medium, fine, and very fine grained, but there are coarse and very coarse sands. In Vernon Parish, the thickness of this member varies from about 152 m (500 ft) at its outcrop to 335 m (1100 ft) in the southeast. Permeabilities of its aquifers at Alexandria, Louisiana, were from 8,149 to 20,373 liters/day per square meter (200 to 500 gal/day per square foot). Leesville municipal wells in this aquifer have specific yields (capacities) of 186 to 310 liters/min per meter of drawdown (15 to 25 gal/min per foot). Pumping rates of 2,082 to 2,460 liters/min (550 to 650 gal/min) at North Fort Polk and 1,514 to 3,028 liters/min (400 to 800 gal/min) at Leesville have been reported for these sands.	Sands contain fresh water as deep as 914 m (3000 ft) below sea level and possibly deeper in the southeastern portion of the Main Post area. Electrical logs have indicated highly mineralized water, possibly salt water, in the deeper sands near the southeast corner of Vernon Parish.	Good quality water is available; water quality varies laterally and vertically within this member. The water is generally harder than in the Williamson Creek Member and has a similar iron problem. Hydrogen sulfide gas has been found in some water sample analyses.	This member is one of the most extensively developed large-quantity aquifers in Vernon Parish. Most wells existing in the northern third of the parish utilize it; deeper wells in Leesville and some of the drilled wells in the Fort Polk Study Area penetrate it.
1	The Williamson Creek Member of the Fleming Formation varies in thickness from 122 m (400 ft) near its outcrop to 274 m (900 ft). Sand beds constitute 40 to 60 percent of this member and vary in thickness from 15 m (50 ft) to greater than 30 m (100 ft). Average permeabilities of the sands range from 8,149 to 20,373 liters/day per square meter (200 to 500 gal/day per square foot) and storage coefficients range from 0.00017 at North Fort Polk to 0.00026 at South Fort Polk. Wells using this aquifer have specific yields (capacities) of 42 to 206 liters/min per meter of drawdown (3.4 to 16.6 gal/min per foot) and have total yields of 1,041 to 2,460 liters/min (275 to 650 gal/min).	Freshwater aquifers in this formation can be found at depths from approximately 122 m (400 ft) below sea level at the Main Post area northwest boundary to 579 m (1900 ft) below sea level at the southeastern corner of Vernon Parish.	Excellent quality fresh water is available. However, objectionable quantities of iron were found in some wells where the pH tended toward the acid side. Based on chemical analyses of 18 wells, the average pH was 6.8.	Wells developed in this member have shown it as generally a large-quantity source of ground water. The thick sand intervals and extensive available aquifer data contribute to high potential development as a major ground water resource.
1	The Cockfield Formation consists of 25 to 70 percent sandy material with thickest sand and silt beds in the lower part of the formation. Generally, the beds are 7.6 to 15 m (25 to 50 ft) thick with some as thick as 30 m (100 ft). Usually, the sand size ranges from very fine to medium. A permeability test in Caldwell Parish indicated a permeability of 12,224 liters/day per square meter (300 gal/day per square foot). Yields of wells in this formation in adjacent parishes have been as high as 378 liters/min (100 gal/min). Northeastern Louisiana municipal wells in this aquifer have been reported to yield up to 2,650 liters/min (700 gal/min).	Depths to this formation range from 213 m (700 ft) to 518 m (1700 ft) in the Peason Ridge and Horse's Head areas. Water levels in this aquifer in northern Vernon Parish are 30 to 61 m (100 to 200 ft) below ground surface.	Good quality water is available in this aquifer. The water has a brownish color due to the presence of lignite in the sands. The water is soft but high in dissolved solids, primarily sodium bicarbonate.	Rugged terrain and unattractiveness to industry have hampered full development of this aquifer as a water resource. Both dug and drilled wells are present and used for farm and domestic purposes. Drilled wells have 5- or 10-cm (2- or 4-in.) casings and 1.8- to 7.6-m (6- to 25-ft) screens and jet or submersible centrifugal pumps. Wells yielding 1893 liters/min (500 gal/min) may be possible if a permeability of 8149 liters/day per square meter (200 gal/day per square foot) and 18 m (60 ft) of sand aquifer are assumed.
1	The Catahoula Formation has a thickness of 61 to 152 m (200 to 500 ft) near its outcrop to between 183 and 305 m (600 and 1,000 ft) at the southern boundary of Vernon Parish. Sand comprises 25 to 50 percent of the aquifer and is present in beds with a maximum thickness of 21 m (70 ft); sand sizes range from very coarse to very fine. Wells in this aquifer generally have yielded less than 189 liters/min (50 gal/min). A single pumping test resulted in a permeability of 13,039 liters/day per square meter (320 gal/day per square foot) and a transmissibility of 235,967 liters/day per meter (19,000 gal/day per foot). The variability of sand sizes should have a direct effect on permeability, transmissibility, and well yield.	This formation contains both fresh and salt water. It is difficult to determine safe depths for freshwater wells in this formation.	Good quality fresh water is available. The water is softer than that of the Carnahan Bayou Member but also has objectionable iron contents. From the Leesville area toward the south, the aquifer becomes partially contaminated with salt water.	A few domestic and military supply wells have been dug and drilled into this aquifer. Development has been slow due to sparse population in the outcrop area and the associated low water consumption. Most wells utilizing the formation supply moderate quantities of water and are constructed with 10-cm (4-in.) casings, up to 6.1-m (20-ft) screens, and either jet or submersible turbine pumps.
2	No data were available on quantities from the recent alluvium; sufficient water exists to supply farm and domestic wells (probably less than 38 liters/min (10 gal/min)).	No data were available on depths; alluvium is thin relative to the underlying water-bearing formations.	No data were available.	Some home and farm wells in the surrounding area use this unit for water.

TABLE C5. CHEMICAL ANALYSIS OF GROUND WATER

WELL NO. *	GEOLOGIC UNIT TAPPED	DATE SAMPLED	pH	SILICA (SiO <sub>2</sub> )	CONSTITUENT, mg/liter															COLOR
					TOTAL IRON (Fe)	CALCIUM (Ca)	MAGNESIUM (Mg)	SODIUM (Na)	POTASSIUM (K)	BICARBONATE (HCO <sub>3</sub> )	SULFATE (SO <sub>4</sub> )	CHLORIDE (Cl)	FLUORIDE (F)	NITRATE (NO <sub>3</sub> )	TOTAL DISSOLVED SOLIDS (TDS)	HARDNESS (CaCO <sub>3</sub> )	CARBON DIOXIDE (CO <sub>2</sub> )	CARBONATE (CO <sub>3</sub> )		
Na9	Cockfield Formation	24 Mar 58	8.7	24	0.24	0.9	0.3	235	1.4	505	23	20	0.5	0.5	587	3	--	27	--	
Na322	Cockfield Formation	24 Mar 58	8.5	29	0.31	1.2	0.2	216	1.3	421	59	31	0.4	1.5	571	4	--	13	--	
V240	Catahoula Formation	22 Jun 60	5.7	47	0.02	3.0	0.4	8.3	2.3	19	1.2	8.9	0.1	0.0	80	9	--	--	--	
V398	Catahoula Formation	8 Jan 63	7.4	32	0.02	2.0	1.2	90	2.5	208	19	13	0.1	0.1	271	10	--	--	--	
V398	Catahoula Formation	6 Jan 76	7.9	38	--	--	--	80	2.4	--	17	15	0.2	0.2	266	--	--	--	15	
V26	Carnahan Bayou Member of Fleming Formation	19 Dec 57	7.3	45	3.7	6.8	1.2	44	5.4	112	12	16	0.4	1.2	199	22	9.0	--	--	
V126	Carnahan Bayou Member of Fleming Formation	5 Jul 56	7.5	54	2.6	64	1.8	--	37	238	8.0	31	0.0	0.2	315	166	--	--	--	
V127	Williamson Creek Member of Fleming Formation	23 Aug 46	6.9	50	6.2	49	2.3	31	--	194	6.8	23	0.0	0.2	262	132	5.5	--	--	
V116	Williamson Creek Member of Fleming Formation	17 May 42	7.4	48	0.53	59	4.0	35	3.9	254	5.5	19	0.1	0.0	300	164	--	--	--	

Note: All analyses were performed by the U. S. Geological Survey on water taken from Map Unit 1.

\* These are the well numbers used by the Louisiana Geological Survey.

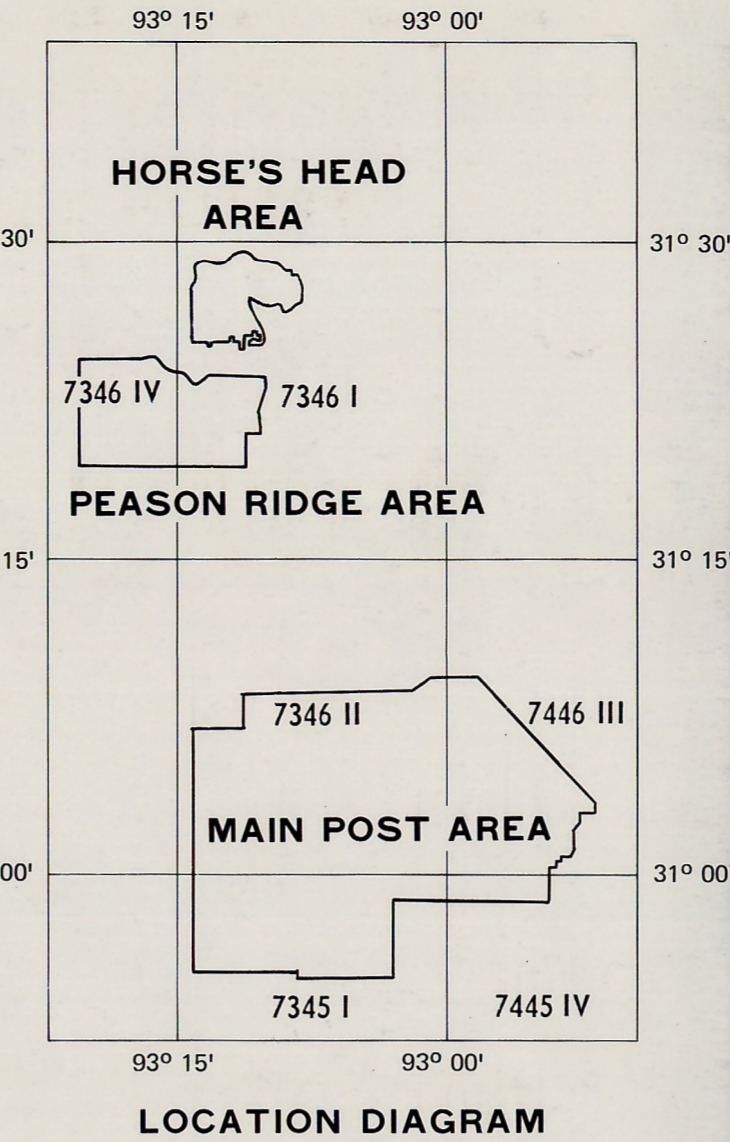
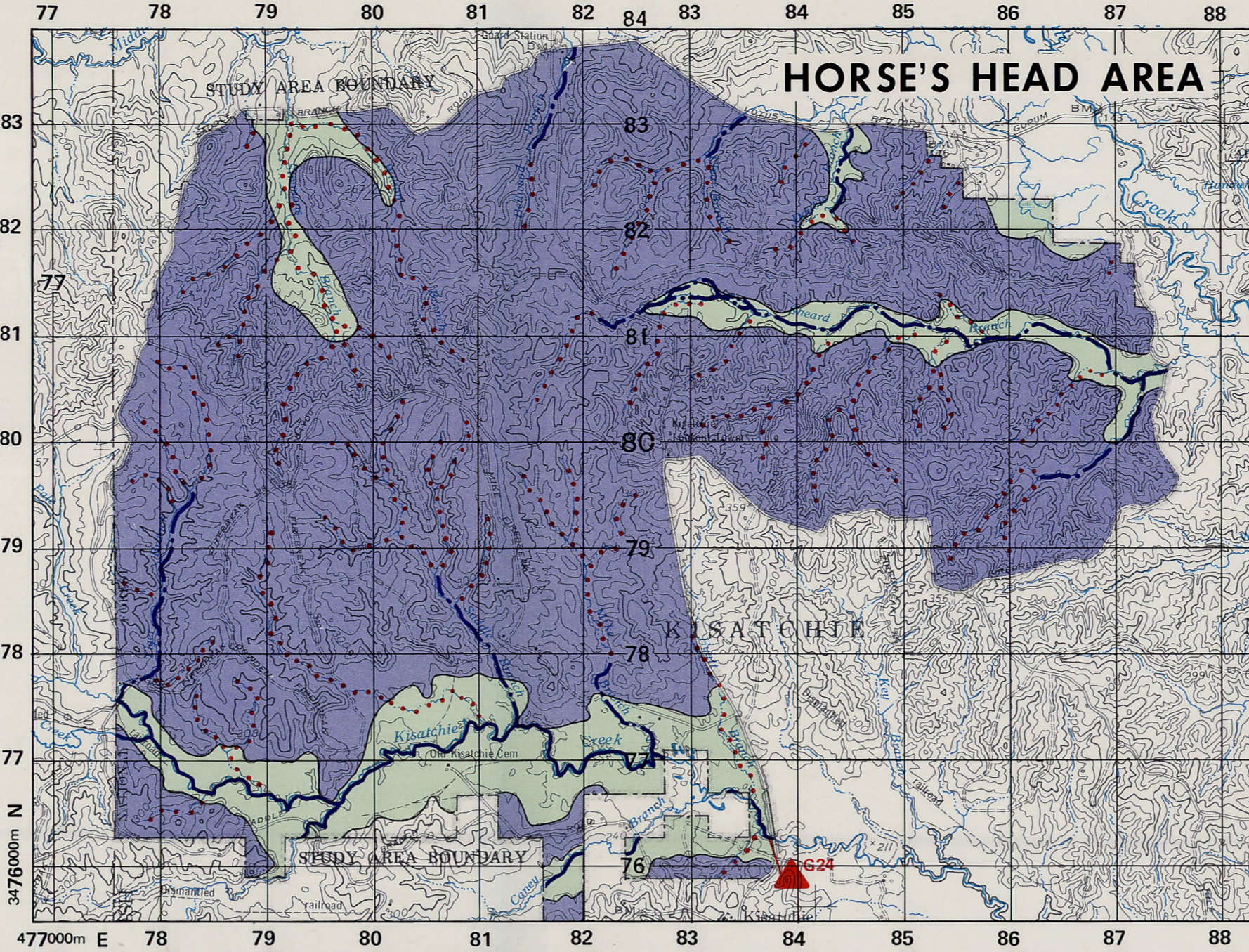
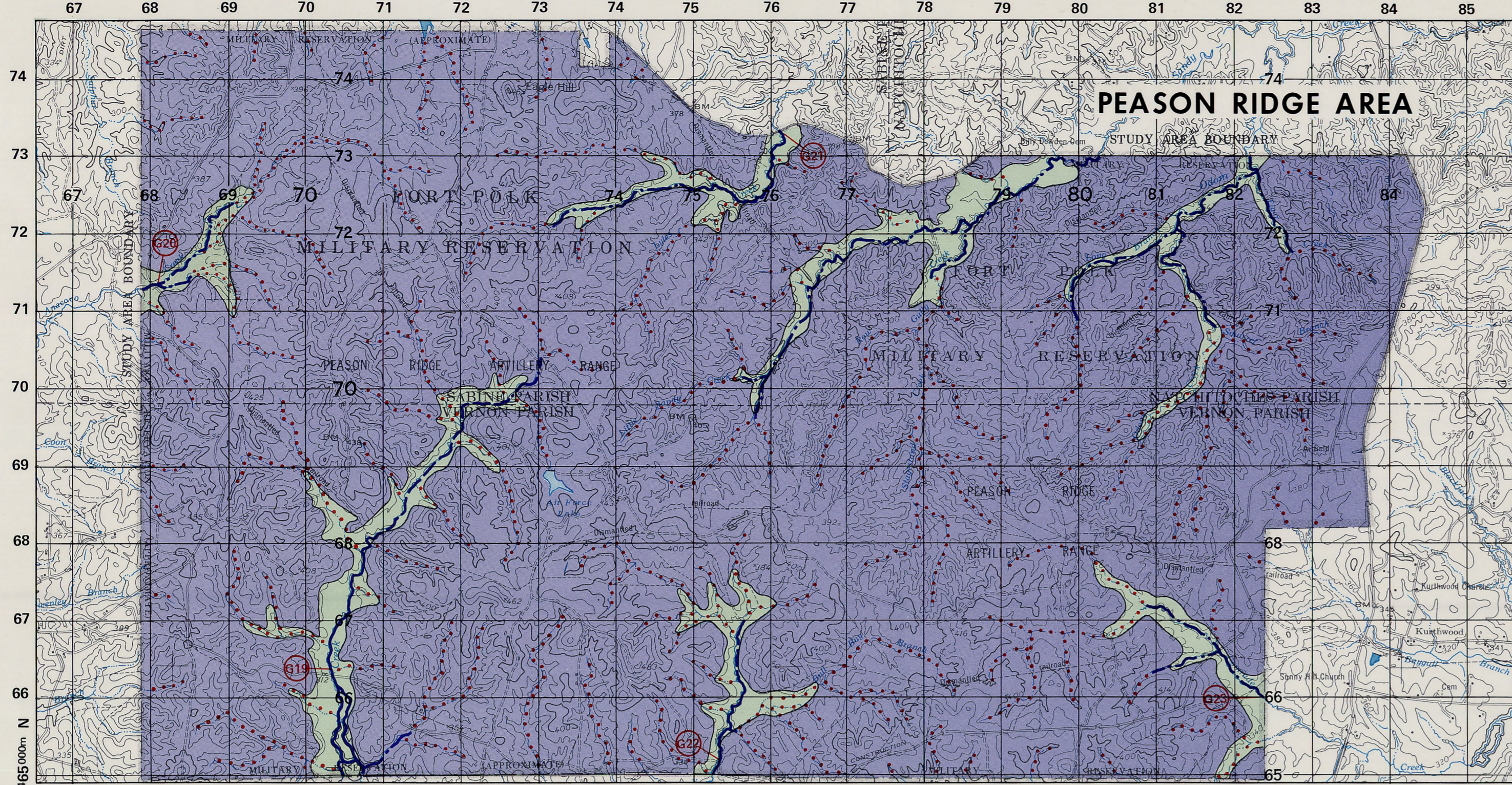
TABLE C6. CHARACTERISTICS OF WELLS IN THE MAIN POST AREA

WELL NO.	DEPTH		SOURCE DEPOSITS	INTERVAL EXPOSED		THICKNESS		LENGTH OF CASING		FLOW RATE		SPECIFIC CAPACITY	
	m	ft		m	ft	m	ft	m	ft	liters/min	gal/min	liters/min per	gal/min per
												meter of drawdown	foot of drawdown
South Fort Polk Cantonment Area													
5	278	912	Sand	258-276	847-907	18	60	258	847	1427	377	49.7	4
5A	282	925	--	--	--	--	--	--	--	1893	500	99.4	8
6A	274	899	Sand	257-272	842-892	15	50	257	842	1836	485	149.0	12
6B	206	675	--	--	--	--	--	--	--	1893	500	86.9	7
7	277	910	Sand	260-275	853-903	15	50	260	853	1893	500	111.8	9
9	283	930	Sand/Shale	189-204	621-671	15	50	189	621	1560	412	49.7	4
11	279	915	Sand	254-270	835-885	15	50	254	835	2873	759	136.6	11
12	273	895	Sand	252-267	827-877	15	50	252	827	2120	560	347.7	28
North Fort Polk Cantonment Area													
2APS	180	590	Sandy Shale	161-179	528-588	18	60	161	528	2370	626	136.6	11
2APD	376	1235	Sand	355-370	1166-1214	15	48	355	1166	1514	400	173.9	14
4PS	187	613	Sand	166-187	545-613	20	66	166	545	2271	600	99.4	8
6PD**	398	1307	Sand/Shale	357-369	1171-1211	12	40	357	1171	1893	500	310.5	25
			Sand	378-390	1240-1280	12	40						
6PS	183	600	Sand	162-182	532-598	20	66	162	532	1893	500	74.5	6
7APD	397	1303	Sand	377-389	1236-1276	12	40	377	1236	1904	503	149.0	12

Note: All water supply wells for the cantonment areas have artesian aquifers.

\* These are the well numbers used at Fort Polk.

\*\* This well has two screens at two intervals as indicated.



# FORT POLK, LOUISIANA

(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

## TERRAIN ANALYSIS

### WATER RESOURCES

#### SURFACE WATER

FRESH WATER PERENNIALY PLENTIFUL

- 1. Very large quantities
- 2. Large quantities
- 3. Moderate quantities



FRESH WATER SCARCE

- 4. Meager to small quantities

NOTE: Definitions of quantity terms are as follows:

Quantity	Liters Per Minute (lpm)	Gallons Per Day (gpd)
Very large	4,000 - 40,000	1,500,000 - 15,000,000
Large	400 - 4,000	150,000 - 1,500,000
Moderate	40 - 400	15,000 - 150,000
Small	4 - 40	1,500 - 15,000
Meager (generally combined with small)	<4	<1,500

USER NOTE: For permissible concentrations of impurities in military water supply, see Field Water Supply, TM 5-700, July 1967, paragraph 19, or other applicable manuals or regulations.

 Location of average discharge measurements 4 - 15 Nov. 1974, 3 - 14 Feb. 1975.  
 U. S. Geological Survey partial record station.

Except for average discharge measurements, the data portrayed on this map are based on subjective evaluations without support of long-period records.


#### GROUND WATER

FRESH WATER GENERALLY PLENTIFUL

- 1. Moderate to large quantities from thick sections of sands.

FRESH WATER LOCALLY PLENTIFUL

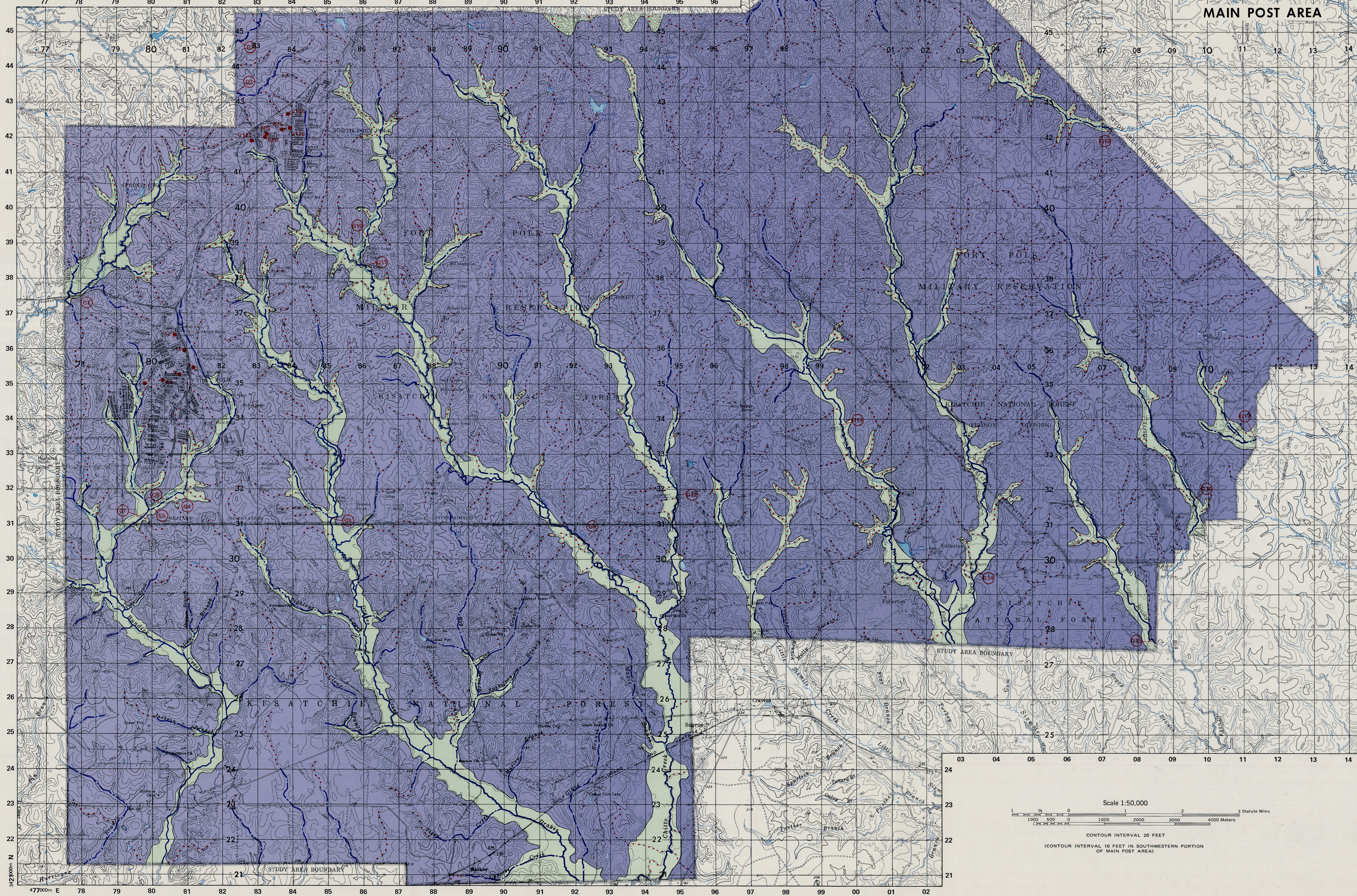
- 2. Meager quantities from recent alluvium.

-  Well

NOTE: Definitions of quantity terms are as follows:

Quantity	Liters Per Minute (lpm)	Gallons Per Day (gpd)
Large	400 - 4,000	150,000 - 1,500,000
Moderate	40 - 400	15,000 - 150,000
Meager	<4	<1,500

USER NOTE: For permissible concentrations of impurities in military water supply, see Field Water Supply, TM 5-700, July 1967, paragraph 19, or other applicable manuals or regulations.



NOTE: Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, January 1978.

D. ENGINEERING SOILS

SOIL CHARACTERISTICS AND SELECTED EVALUATIONS

Because of the paucity of detailed soil data for the Fort Polk Study Area, Table D1 and the accompanying Engineering Soils Map are generalized. As a result, their application should be solely for general planning purposes and general site selection. Specific engineering activities must always require detailed engineering soil investigations and accompanying laboratory analysis.

The soils of the Fort Polk Study Area have been grouped into six map units based on similarity of certain engineering characteristics. The typical soil profile presented for each of the six map units is highly generalized, especially the thickness of the soil layers and the depth to rock. Actual field conditions will generally reveal appreciable variation. The high water table, permeability, and shrink-swell potential values for each map unit likewise reflect average conditions. Ratings for seven types of engineering limitations are given in the qualitative terms **slight**, **moderate**, and **severe**. These general terms are further defined in terms of certain soil-related properties. Drainage is also evaluated in qualitative terms.

The Gulf Coastal Plain, in which the Fort Polk Study Area is physiographically located, was formed by the nearshore deposition of sediments during Cenozoic time (Pleistocene and Miocene). During the Miocene, alternating continental and marine depositions resulted in a highly complex sequence of sediments. Pleistocene terrace deposits mantle the Miocene deposits across the southern half of the Main Post area and occur as isolated outcrops in the northern half of that area, in the western portion of the Peason Ridge area, and along a number of major streams throughout the Study Area.

Except for exposed clay soils in the northern third of the Main Post area and certain narrow floodplains that dissect the Fort Polk Study Area, the entire surface of the Fort Polk Study Area is mantled with a fine-grained silty sand topsoil. This topsoil is underlain at varying depths by a sandy clay subsoil that may locally be underlain by fine-grained sandstone or siltstone. Scattered outcrops of sandstone were observed at various locations throughout Map Units 1 and 2. A relatively thick layer of plastic clay subsoil occurs in the northern third of the Main Post area. The floodplains are predominantly silty and sandy soils that are underlain by silty clays. The floodplain soils become finer in texture as they are deposited away from the streambanks. Small sand and gravel bars occur along reaches of some streams but are too areally restricted to map. Sediments of the smaller tributary floodplains are derived principally from local sources.

The soils of the vast majority of the Fort Polk Study Area are well-drained, often to excess, creating severe erosion problems. Soils of the floodplains and low terraces are well-drained throughout most of the year but many remain poorly drained for prolonged periods during the rainy season. In addition, heavy rains, which may occur at any time of the year, may create temporary drainage problems.

Gullied lands occur throughout the Study Area but due to their restricted areal extent have not been delineated. Still, they present a significant deterrent to the utilization of the lands for certain engineering activities.

TABLE D1. ENGINEERING SOILS

MAP UNIT	MAJOR SOIL SERIES*	GEOGRAPHIC SETTING	TYPICAL SOIL PROFILE **-- LAYERS, THICKNESS OF LAYERS, DEPTH TO ROCK, USCS† (PROFILES NOT TO SCALE)		HIGH WATER TABLE (DEPTH AND DURATION)		PERMEABILITY		SHRINK- SWELL POTENTIAL	DRAINAGE	RATING AND MAJOR KINDS OF LIMITATIONS FOR:							REMARKS	
			cm	in.	m	ft	cm/hr	in./hr			SEWAGE LAGOONS	SANITARY LANDFILL	FOUNDA- TION FOR SMALL BUILDINGS	BIVOUAC SITES	ROAD LOCATION	SHALLOW EXCAVA- TION	TRAFFIC- ABILITY		
1	Ruston Bowie Lucy Susquehanna	Moderately well- drained soils on undulating to rolling dissected Gulf Coastal Plain uplands. Slopes from 3 to 15 percent, locally to 30 percent.	cm	in.															
			40	15.7	Grayish-brown very fine silty sand	>1.8	>5.9	1.5 to 5.0	0.59 to 1.97	Low	Good	Moderate- severe (h,p,s)	Moderate- severe (h)	Slight- moderate (h)	Moderate- severe (h)	Moderate (h,t)	Slight- moderate (h)	Slight (w)	Mostly pine forest locally mixed with hardwood.
					Reddish-brown sandy clay			1.5 to 5.0	0.59 to 1.97	Low									
			200	78.7															
2	Kisatchie Shubuta	Well-drained soils on hilly to steep dissected Gulf Coastal Plain uplands. Slopes 15 to 45 percent.	cm	in.															
					Grayish-brown very fine silty sand	>1.8	>5.9	1.5 to 5.0	0.59 to 1.97	Low	Good, rapid runoff	Severe (h,d)	Severe (h,d)	Severe (h,a,t)	Moderate- severe (h,p)	Severe (h,a,t)	Severe (b,d,h)	Moderate- severe (h)	Mostly pine forest; hardwoods occur in narrow floodplains.
			15	5.9	Red and gray sandy clay			<1.5	<0.59	High									
			60	23.6															
3	Susquehanna Houston Sumter	Moderately well- drained to well- drained soils on gentle to strongly sloping dissected Gulf Coastal Plain uplands. Slopes 3 to 15 percent.	cm	in.															
					Grayish-brown fine silty sand	>1.8	>5.9	1.5 to 5.0	0.59 to 1.97	Low	Moderate	Moderate- severe (h)	Moderate- severe (h,w)	Severe (h,a,t)	Moderate- severe (h,b)	Severe (h,a,t)	Severe (h,b,w)	Severe (w,x,y)	Trafficability poor when clay soils are wet. Unit mostly in pine forest.
			10	3.9	Red and gray, mottled plastic clay			<1.5	<0.59	Very high									
			140	55.1															
4	Guyton Chastain	Poorly drained floodplain soils. Slopes <3 percent.	cm	in.															
					Grayish-brown sandy silt or silty sand	0 to 1.0 (Dec-May)	0 to 3.3	1.5 to 5.0	0.59 to 1.97	Low	Poor	Severe (w)	Severe (w)	Severe (w)	Severe (f,w)	Severe (w)	Severe (w,c)	Severe (w,f)	May be flooded during spring. Trafficability fair during dry season; dense forest would inhibit vehicular movement.
			60	23.6	Gray mottled with brown silty clay			0.15 to 0.5	0.06 to 0.20	Low									
5	Beauregard Caddo Bowie	Moderately well- drained soils on nearly level to undulating terraces. Slopes 3 to 15 percent.	cm	in.															
					Brown very fine sandy silt	1.0 (Dec-May)	3.3	1.5 to 5.0	0.59 to 1.97	Low	Moderate	Moderate (h,s)	Slight- moderate (h,w)	Slight- moderate (h,w)	Slight (w)	Moderate (t)	Moderate (w)	Slight (w)	Lower portion of unit may be flooded during spring. Mixed pine and hardwood on lower slopes; pine on upper. Trafficability may be poor on lower slopes when wet.
			100	39.4	Yellowish- brown fine sandy clay			1.5 to 5.0	0.59 to 1.97	Low									
6	Eustis Lucy	Well-drained soils on rolling to steeply sloping terraces. Slopes 3 to 30 percent.	cm	in.															
					Gray fine silty sand grading to a reddish clayey sand or sandy clay. Locally, very gravelly below 200 cm (78.7 in.)	>1.8	>5.9	1.5 to 15.0	0.59 to 5.90	Low	Good to excessively drained	Severe (h,s)	Moderate- severe (h,s)	Moderate- severe (h)	Moderate- severe (h,k)	Moderate (h,k)	Moderate- severe (h,c,k)	Moderate- severe (h,k)	Combination of steep slopes and dense pine forest may inhibit vehicular movement in portions of unit. Lenses of gravel occur throughout; locally quarried.
			200	78.7															

Note: Data for the Engineering Soils Map and this table came from various sources, published and unpublished. Major source items are presented in the LIST OF SOURCES.

\* Soils that have very similar profiles comprise a soil series. The series is the common name for the soil. Each series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Many other minor soils are included in the map unit.

\*\* These are typical average layers, and thicknesses may vary considerably from those shown. Minimum depth to rock is 2 m (6.6 ft) but is generally much more than this.

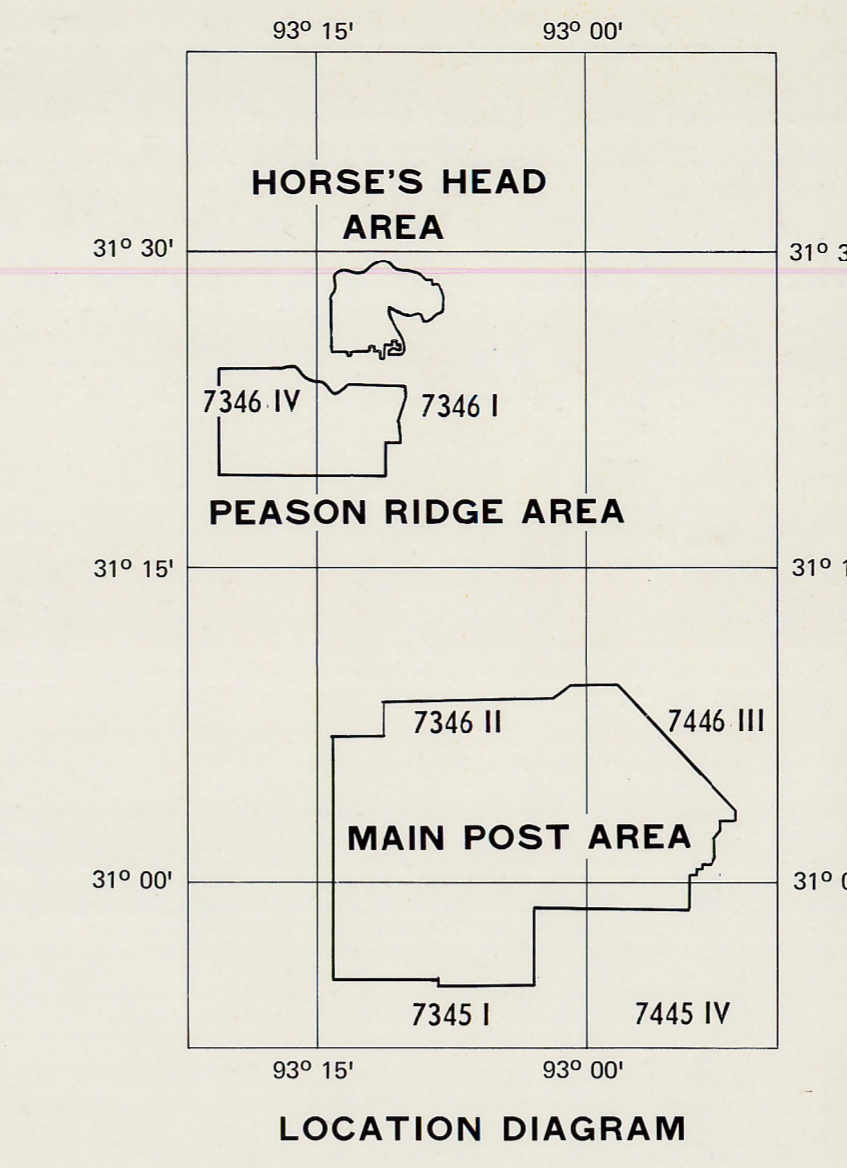
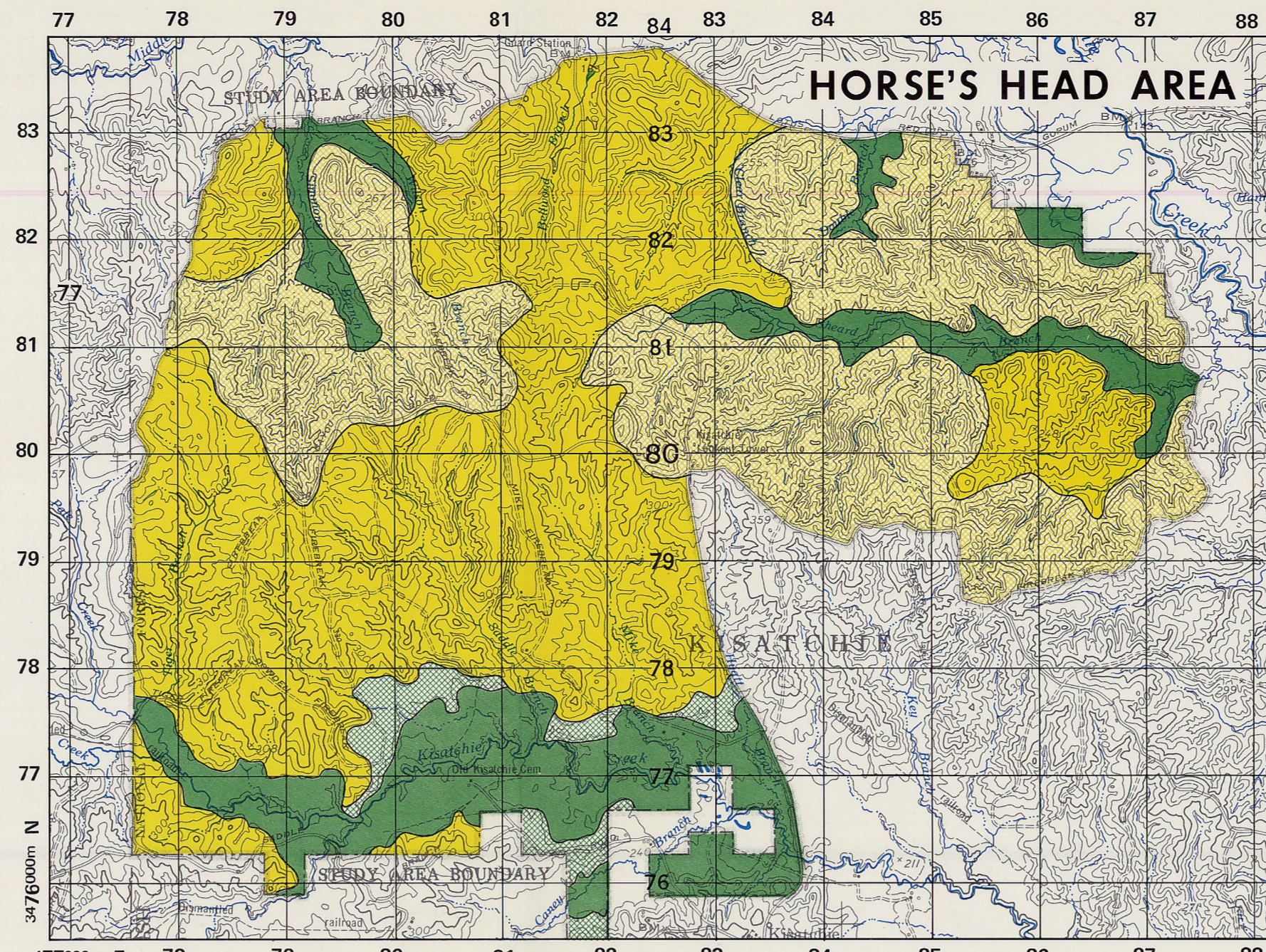
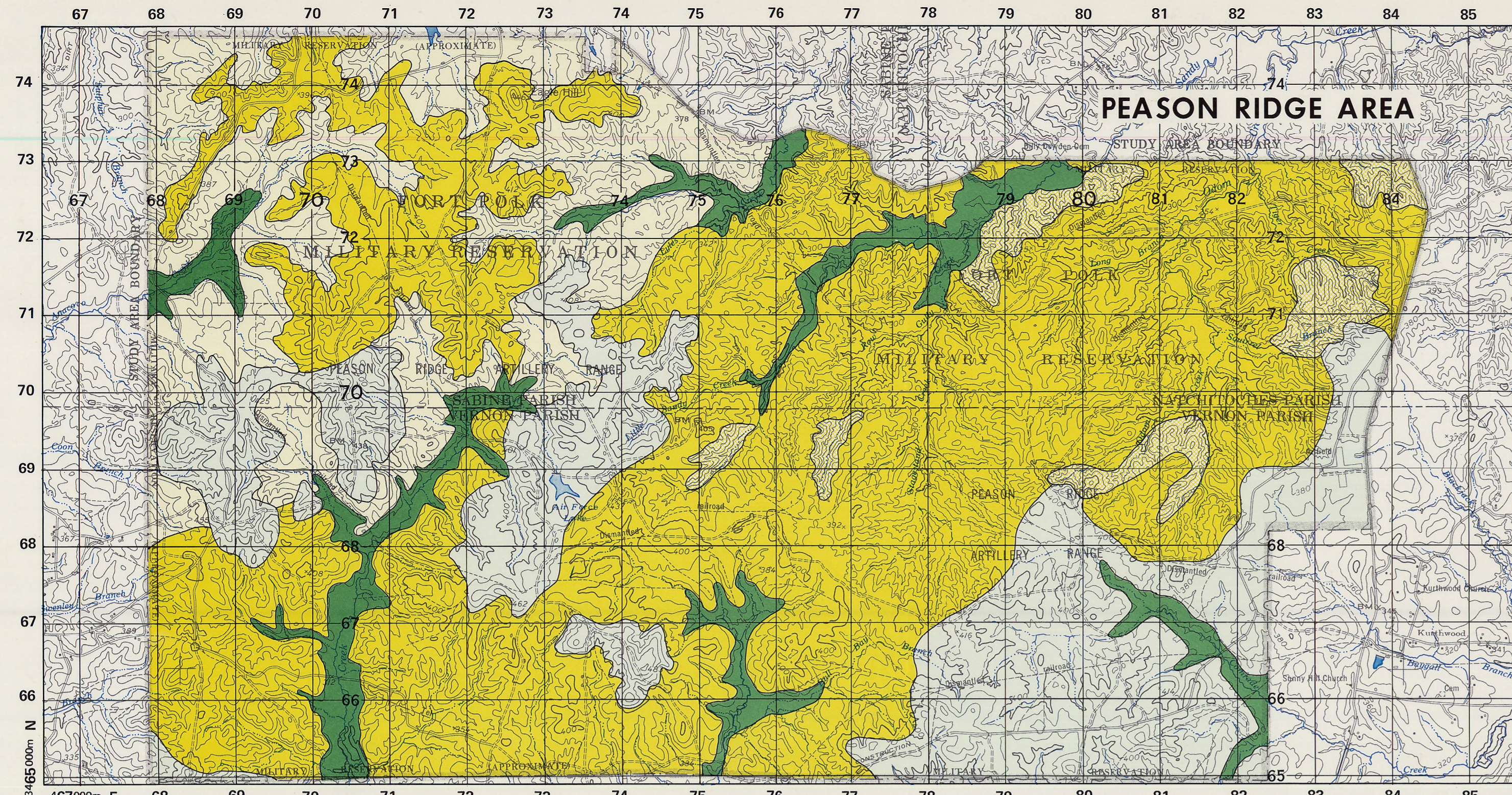
† The Unified Soil Classification System, Technical Memorandum No. 3-357, U. S. Army Corps of Engineers, March 1953.

DEFINITIONS OF RATING TERMS

Slight—relatively free of limitations or limitations are easily overcome.  
Moderate—limitations can be overcome with good planning and/or careful design.  
Severe—limitations are serious and are difficult to overcome.

SOIL-RELATED PROPERTIES AFFECTING LIMITATIONS

a—High shrink-swell potential  
b—Too clayey  
c—Cutbanks cave  
d—Depth to rock  
f—Flooding  
h—Slope  
k—Loose sand  
p—Slow permeability  
s—Seepage  
t—Low bearing strength  
w—Wetness  
x—Slipperiness  
y—Stickiness



# FORT POLK, LOUISIANA

(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

## TERRAIN ANALYSIS

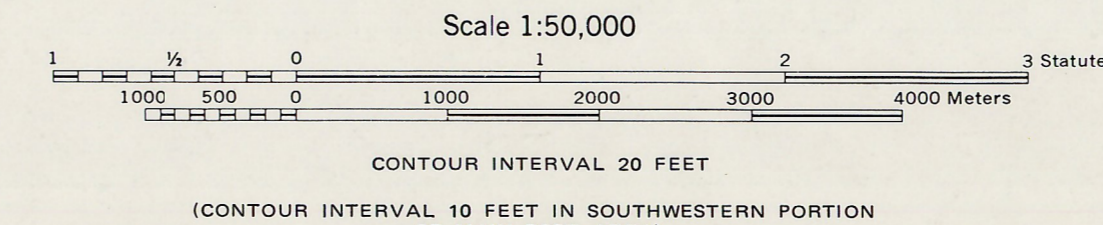
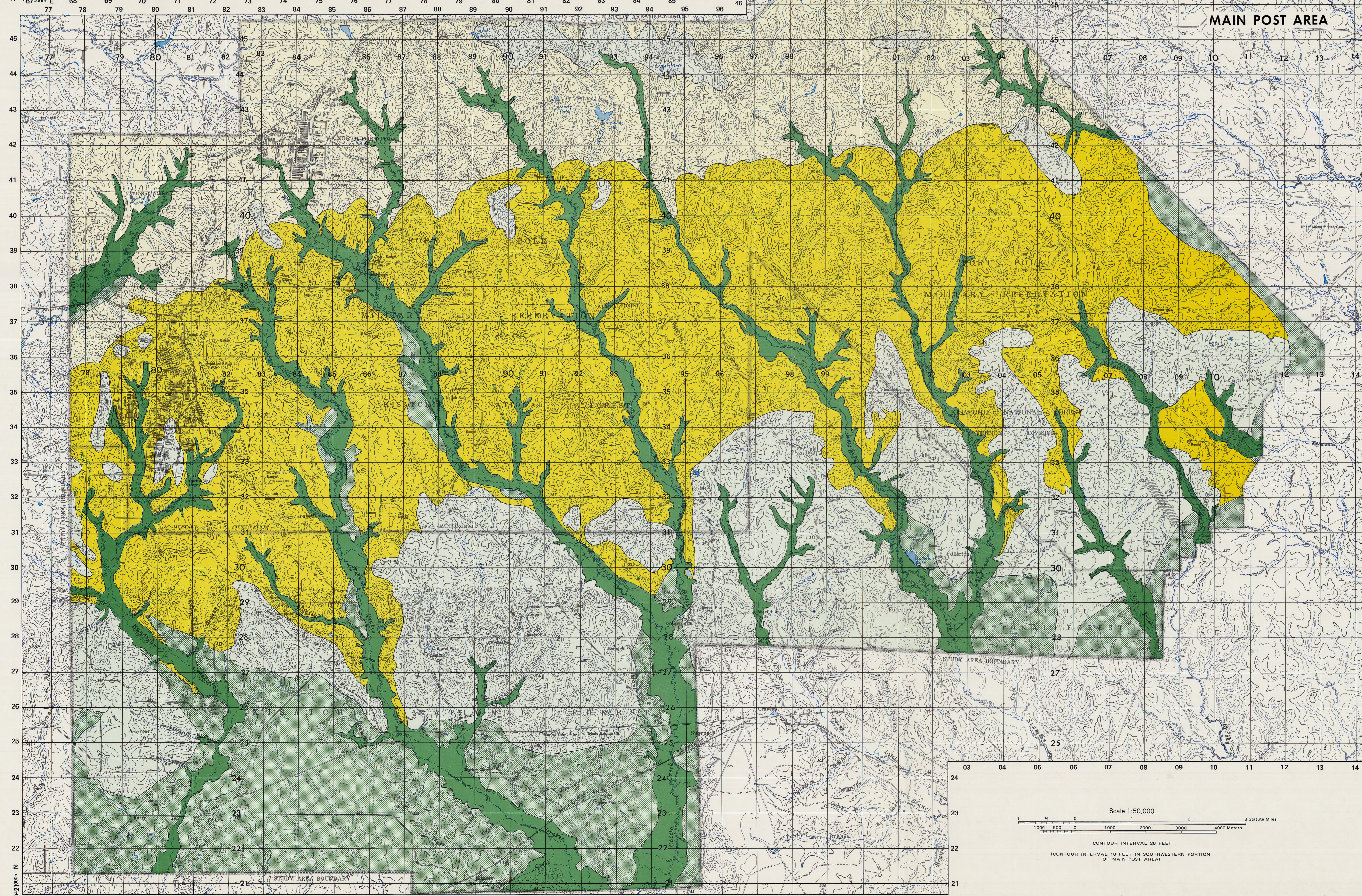
### ENGINEERING SOILS

#### SOILS OF THE GULF COASTAL PLAIN UPLANDS

- 1. Sandy, moderately to well-drained soils on undulating to rolling uplands
- 2. Sandy, well-drained soils on hilly to steep uplands
- 3. Clayey, moderately well-drained soils on gently to strongly sloping uplands

#### SOILS OF ALLUVIAL FLOODPLAINS AND TERRACES

- 4. Silty or sandy, poorly drained floodplain soils
- 5. Silty, moderately well-drained soils on nearly level to undulating terraces
- 6. Sandy, well-drained soils on dissected rolling to steeply sloping terraces



NOTE: Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, January 1978.

E. ENGINEERING GEOLOGY

The near-surface geological materials of the Fort Polk Study Area consist predominantly of complexly interlayered, discontinuous deposits of sand, silt, and clay and their mixtures. Areal restricted lenses of gravel and outcrops of sandstone also occur locally. The near-surface unconsolidated geological materials reflect their depositional environments, which are considered to be nearshore, fluvialite, and shallow brackish water. As in modern deposits in such environments, lenses of the above-mentioned materials may grade or abruptly change from one to another over short lateral or vertical distances.

Clay-rich and sand-rich intervals have been identified, however. Their outcrops, along with sand, clay, and gravel terrace deposits, and narrow, thin Recent alluvium form the basis of the four engineering geology map units.

The map units used in Table E1 below describe the near-surface region that includes the geological materials to a depth of 15 m (50 ft). This excludes surface soils that may range up to 1.5 m (5 ft) in depth. This interval is considered relevant to a generalized engineering evaluation. Particular engineering projects, especially those requiring

knowledge of deep subsurface conditions, would require detailed site investigations.

The evaluations and descriptions of the engineering geology map units are based largely on Louisiana Geological Survey reports on the area geology, as well as reports and data from numerous site investigations by various other agencies. These were augmented by observations of material compositions, layering, slopes, and other properties made during field trips to the area.

The evaluations and descriptions included in the following table are necessarily generalized; they reflect a wide range of conditions within the same engineering geology map unit. This was necessary because of the complexity and diversity of the units and also the relatively small mapping scale. The data included under Physical Constants, however, describe selected samples that are considered to be representative of geological materials which occur within the units.

TABLE E1. ENGINEERING GEOLOGY

MAP UNIT	TOPOGRAPHY	ROCK DESCRIPTION	PHYSICAL CONSTANTS (SELECTED SAMPLES) *	ENGINEERING EVALUATIONS **	EXCAVATION FACTORS	PITS AND QUARRIES
1. Layered mixtures of predominantly sand with silt and clay (includes Catahoula Formation and Blounts Creek and Carnahan Bayou Members of the Fleming Formation of Miocene Age).	<p>In the Main Post area, broad to moderately narrow, NNW-SSE trending ridges dissected by narrow drainageways lead to broader valleys paralleling the 12- to 18-m (40- to 60-ft) higher ridges. Slopes are 3 to 15 percent.</p> <p>In the Peason Ridge area, rolling uplands extend to narrow ridges dissected by steep-sided drainageways; 12- to 18-m (40- to 60-ft) relief is common. Slopes are 3 to 15 percent.</p> <p>In the Horse's Head area, rough to moderately rough hills occur, often with 24- to 30-m (80- to 100-ft) relief and narrow steep-sided drainageways. Slopes are locally to 30 percent.</p>	<p>Southeasterly dipping (9 to 19 m/km (50 to 100 ft/mile)), irregular, layered beds of predominantly sand and silt. Layers are composed of lenses of mixed sand, silt, and clay and may be separated by thin intervals of predominantly clay.</p> <p>In the Horse's Head and Peason Ridge areas, sands, silts, and clays may be cemented with opaline silica to form thin discontinuous beds of sandstone, siltstone, and shale. Indurated horizons are not encountered at depth since constant saturation dissolves cementing material beneath the water table. The silica cement is thought to be related to associated, dispersed deposits of reworked bentonite. The sands are not well rounded or sorted and tend to pack well. A few outcrops of brown shale, gray quartzitic sandstone, black chert gravel, and lignite occur. The sand and silt grains are predominantly quartz with as much as 20 percent plagioclase or potassium feldspar. The clay minerals are montmorillonite and kaolinite.</p>	<p>Clayey sand (SC) Boring U-1-2 <b>Sieve analysis:</b> Cumulative percent passing No. 10 (100); No. 40 (97); No. 70 (87); No. 100 (60); No. 200 (40) <b>Silt:</b> 20 percent <b>Clay:</b> 20 percent <b>Liquid limit:</b> 53 <b>Plastic limit:</b> 18 <b>Plasticity index:</b> 35 <b>Specific gravity:</b> 2.66 <b>Coefficient of permeability:</b> 10<sup>-6</sup> to 10<sup>-8</sup> cm/sec (1.418 × 10<sup>-3</sup> to 1.418 × 10<sup>-5</sup> in./hr) <b>California bearing ratio:</b> 5 to 20</p> <p>Plastic clay (CH) Boring SP-1-1 <b>Sieve analysis:</b> Cumulative percent passing No. 10 (100); No. 40 (100); No. 70 (98); No. 100 (97); No. 200 (93) <b>Silt:</b> 36 percent <b>Clay:</b> 57 percent <b>Liquid limit:</b> 77 <b>Plastic limit:</b> 30 <b>Plasticity index:</b> 47 <b>Specific gravity:</b> 2.61 <b>Coefficient of permeability:</b> 10<sup>-6</sup> to 10<sup>-8</sup> cm/sec (1.418 × 10<sup>-3</sup> to 1.418 × 10<sup>-5</sup> in./hr) <b>California bearing ratio:</b> &lt;15</p> <p>Sandy silt (ML) Boring U-1-15 <b>Sieve analysis:</b> Cumulative percent passing No. 10 (100); No. 40 (100); No. 70 (98); No. 100 (95); No. 200 (67) <b>Silt:</b> 51 percent <b>Clay:</b> 16 percent <b>Liquid limit:</b> 35 <b>Plastic limit:</b> 25 <b>Plasticity index:</b> 10 <b>Specific gravity:</b> 2.66 <b>Coefficient of permeability:</b> 10<sup>-3</sup> to 10<sup>-6</sup> cm/sec (1.418 to 1.418 × 10<sup>-3</sup> in./hr) <b>California bearing ratio:</b> &lt;15</p> <p>Fine silty sand (SM) Boring SP-3-1 <b>Sieve analysis:</b> Cumulative percent passing No. 10 (100); No. 40 (95); No. 70 (70); No. 100 (38); No. 200 (20) <b>Silt:</b> 16 percent <b>Clay:</b> 4 percent <b>Nonplastic</b> <b>Specific gravity:</b> 2.63 <b>Coefficient of permeability:</b> 10<sup>-3</sup> to 10<sup>-6</sup> cm/sec (1.418 to 1.418 × 10<sup>-3</sup> in./hr) <b>California bearing ratio:</b> 10 to 40</p> <p>Clayey sand (SC) Site No. 69 <b>Sieve analysis:</b> Cumulative percent passing No. 40 (90); No. 50 (82); No. 70 (72); No. 100 (52); No. 200 (41) <b>Silt:</b> 20 percent <b>Clay:</b> 21 percent <b>Liquid limit:</b> 37 <b>Plastic limit:</b> 18 <b>Plasticity index:</b> 19 <b>Specific gravity:</b> 2.62 <b>Coefficient of permeability:</b> 10<sup>-6</sup> to 10<sup>-8</sup> cm/sec (1.418 × 10<sup>-3</sup> to 1.418 × 10<sup>-5</sup> in./hr) <b>California bearing ratio:</b> 5 to 20 <b>Compressive strengths, typical values for unit:</b> φ = 0.17 rad (10 deg) &amp; C = 0 to φ = 0.17 rad (10 deg) &amp; C = 47.9 kPa (0.5 tsf) φ = 0.35 rad (20 deg) &amp; C = 0 to φ = 0.61 rad (35 deg) &amp; C = 47.9 kPa (0.5 tsf)</p> <p>Silty sand (SM) Boring 6MS <b>Sieve analysis:</b> Cumulative percent passing No. 40 (100); No. 50 (98); No. 70 (93); No. 100 (73); No. 200 (42) <b>Silt:</b> 35 percent <b>Clay:</b> 7 percent <b>Nonplastic</b> <b>Specific gravity:</b> 2.64 <b>Coefficient of permeability:</b> 10<sup>-3</sup> to 10<sup>-6</sup> cm/sec (1.418 to 1.418 × 10<sup>-3</sup> in./hr) <b>California bearing ratio:</b> 10 to 40</p> <p>Silty sand (SM) Boring 6MU <b>Sieve analysis:</b> Cumulative percent passing No. 40 (99); No. 50 (94); No. 70 (68); No. 100 (31); No. 200 (20) <b>Silt:</b> 11 percent <b>Clay:</b> 9 percent <b>Nonplastic</b> <b>Specific gravity:</b> 2.66 <b>Coefficient of permeability:</b> 10<sup>-3</sup> to 10<sup>-6</sup> cm/sec (1.418 to 1.418 × 10<sup>-3</sup> in./hr) <b>California bearing ratio:</b> 10 to 40</p> <p><b>Typical layering sequence with range of seismic velocities:</b> Surface (SM soils): 0.3 to 0.9 m (1 to 3 ft); 183 to 366 m/sec (600 to 1200 ft/sec) Second layer (SC &amp; CH soils): 3 to 9 m (10 to 30 ft); 671 to 762 m/sec (2200 to 2500 ft/sec) Third layer (predominantly SM soils): 1524 to 1768 m/sec (5000 to 5800 ft/sec)</p>	<p>Alignments require moderate to deep cuts and fills, bridges over most streams. Many areas are underlain by plastic clays.</p> <p>Bearing capacities range from poor to good, depending upon grain size, mixtures, and density. Materials are generally poor for foundations because underlying clays are unstable.</p> <p>Compacted, saturated silty sands have good shearing strength, low compressive strength, and fair workability; silty clays have fair, medium, and good to fair, respectively.</p> <p>Sand is fair for fine concrete aggregate, good for base course, and generally too fine for fill or riprap. Sandstone and siltstone are poor for aggregate because they occur as thin layers. Plastic clays may inhibit excavation.</p> <p>Unit is generally good to poor for disposal of liquid and solid wastes; water table may be seasonally high in low-lying areas, causing ponding and unfavorable conditions; excessive clay and silt may inhibit infiltration and drainage, causing surface runoff of wastes. Infiltration rates for surface soils average 0.007 cm/sec (10 in./hr).</p> <p>Subsurface materials investigation and laboratory testing would be required to determine maximum permissible loading and other engineering properties.</p>	<p>Overburden soils are principally silty sand, ranging in thickness from 7.6 cm (3 in.) to 1.2 m (4 ft), underlain by clay and sandy clay.</p> <p>Soils are easily excavated by hand tools or power equipment. Wet clays may retard excavation by excessive sticking. Occasional indurated layers may require blasting.</p> <p>Excavation conditions: Slope stability—Observed slopes range from 1/2:1 to 2:1.</p> <p>Sliding and slumping—Clay may slide when saturated. Vertical walls in sandy material would require shoring. Landslides are uncommon.</p> <p>Erosion—Sand and silt layers are easily eroded except where indurated. Gullies and ravines occur. Clay layers are less easily eroded.</p> <p>Drainage—Drainage is rapid through sand layer, slow through clay. Seepage is rapid at contact with underlying clay.</p>	<p>A limited number of sand and clay pits occur. No sites are recommended. Some pits have been excavated in clay layers for various types of disposal.</p>
2. Thick layers of clays and silts separated by thin layers of predominantly sand (Lena and Castor Creek Members of Fleming Formation of Miocene Age).	<p>This map unit occurs in the northern portion of the Main Post area and in the northwestern portion of the Peason Ridge area. Where mapped on the Main Post area, the unit is predominantly rolling hills and ridges dissected by narrow valleys of north-south trending streams. The uplands composing the unit are more rugged than the terrain of Map Unit 1 to the south.</p> <p>In the Peason Ridge area, low undulating to rolling uplands occur; 18 to 24 m (60 to 80 ft) of relief is commonly found. Slopes are predominantly 3 to 15 percent and locally are to 30 percent.</p>	<p>The unit dips gently to the south at a rate of about 19 m/km (100 ft/mile). The unit mapped in the Main Post area consists of interfingering lentils of calcareous and non-calcareous light gray clay and silt with very fine sand.</p> <p>In the Peason Ridge area, it is composed of blue to buff bentonitic clay and silt; calcareous and opaline nodules are found locally at the surface; the clay, silt, and sand minerals are the same as those in Map Unit 1; the silts and sands are locally indurated to form thin discontinuous beds of siltstone and sandstone.</p>	<p>Clay borrow Sample No. B-3 <b>Sieve analysis:</b> Cumulative percent passing No. 40 (96); No. 50 (94); No. 80 (77); No. 100 (65); No. 200 (28) <b>Maximum density:</b> 1854 kg/m<sup>3</sup> (115.9 lb/ft<sup>3</sup>) <b>Optimum moisture:</b> 9 percent <b>Liquid limit:</b> 54 <b>Plastic limit:</b> 22 <b>Plasticity index:</b> 32 <b>Coefficient of permeability:</b> 10<sup>-6</sup> to 10<sup>-8</sup> cm/sec (1.418 × 10<sup>-3</sup> to 1.418 × 10<sup>-5</sup> in./hr) <b>California bearing ratio:</b> 5 to 20</p> <p>Sandy clay (CH) Site No. 36 <b>Sieve analysis:</b> Cumulative percent passing No. 40 (99); No. 50 (98); No. 70 (96); No. 100 (90); No. 200 (61) <b>Silt:</b> 30 percent <b>Clay:</b> 51 percent <b>Liquid limit:</b> 68 <b>Plastic limit:</b> 20 <b>Plasticity index:</b> 48 <b>Specific gravity:</b> 2.71</p> <p>Sandy clay (CH) Site No. 2-19 <b>Sieve analysis:</b> Cumulative percent passing No. 40 (99); No. 50 (98); No. 70 (97); No. 100 (94); No. 200 (83) <b>Silt:</b> 14 percent <b>Clay:</b> 69 percent <b>Liquid limit:</b> 57 <b>Plastic limit:</b> 21 <b>Plasticity index:</b> 36 <b>Specific gravity:</b> 2.67 <b>Coefficient of permeability:</b> 10<sup>-6</sup> to 10<sup>-8</sup> cm/sec (1.418 × 10<sup>-3</sup> to 1.418 × 10<sup>-5</sup> in./hr) <b>California bearing ratio:</b> &lt;15</p>	<p>Alignments require moderate to deep cuts and fills, bridges over most stream crossings; cut slopes would require protection against erosion; there are few favorable airfield sites.</p> <p>Bearing capacities are low; clayey materials are unstable when wet; material is generally poor for foundations. Sub-grade conditions are poor to fair; material is not suited for use as concrete aggregate; unsatisfactory for base course, embankment, and fill. Clay is suitable for use in manufacture of brick, tile, and earthenware.</p> <p>Silty sands when compacted have good shearing strength, low compressibility, and fair workability; clays are poor, high, and poor, respectively.</p> <p>Subsurface soil investigation and laboratory testing would be required to determine maximum permissible loading and other engineering properties.</p>	<p>Overburden soils consist of dark gray silty fine sand from several centimeters to a meter thick. Locally, overburden is absent and clay soils are exposed.</p> <p>Soils are easily excavated by hand tools or power equipment. Wet, sticky clays may retard excavation; thin layers of siltstone or sandstone, found locally, may require blasting.</p> <p>Excavation conditions: Slope stability—Observed slopes generally range from 2:1 to 3:1; some slopes near vertical observed.</p> <p>Sliding and slumping—Some clay layers are unstable when wet and may require stabilization or shoring; slides occur locally.</p> <p>Erosion—Locally, erosion is severe in the form of gullies and ravines. Sand layers are easily and rapidly eroded.</p> <p>Drainage—Drainage is slow; seepage is rapid at contact between surface sand and underlying clay. Ponding occurs in low areas with high water table.</p>	<p>Numerous active and abandoned clay borrow pits present in the Main Post area. Many suitable locations are present; some disposal pits are present in clay.</p>

\* Data presented in this column are for selected representative sites.

The values of constants of component materials within a given map unit are highly variable. Data on selected samples are considered typical of a wide range of lithologic variations within each unit.

Sample locations are shown on the Engineering Geology Map. For samples from borings, the second number of the designation is the sample number (e.g., the data for "Boring U-1-2" are for Sample 2 from Boring U-1).

Sieve analyses, Atterberg limits, and density tests were performed using procedures described in **Engineering and Design, Laboratory Soils Testing**, Engineer Manual EM 1110-2-1906, 30 November 1970, Department of the Army, Office, Chief of Engineers, Washington, D. C.

The term "clay" is used for material having particles with diameters less than 0.002 mm (78.7 μ in.).

\*\* The water table has wide seasonal fluctuations. It is lowest on ridges and highest in valleys. Excavations may encounter small, perched water tables above impermeable lenses. The water table may also be low in areas where springs or seepage permits leakage from permeable beds.

E. ENGINEERING GEOLOGY (Continued)

TABLE E1. (Continued)						
MAP UNIT	TOPOGRAPHY	ROCK DESCRIPTION	PHYSICAL CONSTANTS (SELECTED SAMPLES) *	ENGINEERING EVALUATIONS **	EXCAVATION FACTORS	PITS AND QUARRIES
3. Alluvium (mixed deposits of sand, silt, and clay with some gravelly sand).	This unit is a frequent occurrence throughout the Study Area. It ranges from narrow valley bottoms to relatively broad floodplains; some low-lying terraces (Prairie Formation) are included; slopes range from several percent in the upper tributary valleys to nearly level in the larger lower floodplains; sand and gravel point bar deposits occur along some meander bends and on some low-lying terraces.	Dominant materials are mixtures of sand, silt, and clay with some sandy gravel; generally, coarser materials (i.e., sand and silt) occur along streams as natural levees and the finer materials (i.e., clay and silty clay) occur between the natural levees and the valley walls. Gravel when present occurs as bar deposits and in the beds of some streams; the gravel is chiefly eroded from low-lying terrace deposits.	Sand and gravel average sample <b>Sieve analysis:</b> Cumulative percent passing 1-in. (96); 3/4-in. (87); 3/8-in. (83); No. 4 (79); No. 50 (60); No. 100 (44); No. 200 (16); elutriation (100) <b>Specific gravity:</b> 2.56 <b>California bearing ratio:</b> 25 to 60 <b>Chemical analysis of sand:</b> Loss on ignition 0.50 percent Silica 98.20 percent Iron and alumina 0.90 percent Undetermined 0.40 percent 100.00 percent  Sandy clay (CL) Site No. 55 <b>Sieve analysis:</b> Cumulative percent passing No. 40 (99); No. 50 (98); No. 70 (93); No. 100 (83); No. 200 (66) <b>Silt:</b> 26 percent <b>Clay:</b> 40 percent <b>Liquid limit:</b> 27 <b>Plastic limit:</b> 19 <b>Plasticity Index:</b> 8 <b>Specific gravity:</b> 2.65 <b>Coefficient of permeability:</b> 10 <sup>-6</sup> to 10 <sup>-8</sup> cm/sec (1.418 × 10 <sup>-3</sup> to 1.418 × 10 <sup>-5</sup> in./hr) <b>California bearing ratio:</b> <15  Sandy clay (CL) No. 2-34 <b>Sieve analysis:</b> Cumulative percent passing No. 40 (99); No. 50 (99); No. 70 (98); No. 100 (91); No. 200 (65) <b>Silt:</b> 25 percent <b>Clay:</b> 40 percent <b>Liquid limit:</b> 27 <b>Plastic limit:</b> 17 <b>Plasticity Index:</b> 10 <b>Specific gravity:</b> 2.67 <b>Coefficient of permeability:</b> 10 <sup>-6</sup> to 10 <sup>-8</sup> cm/sec (1.418 × 10 <sup>-3</sup> to 1.418 × 10 <sup>-5</sup> in./hr) <b>California bearing ratio:</b> <15	Straight alignments are possible with minimum cuts and fills, especially on broad floodplains; approaches to bridges may require cut and fill; suitable airfield sites are restricted to broad floodplains or adjacent low terraces.  Many saturated clay layers with low bearing capacities occur; bearing capacities are high in coarse materials.  Granular materials are suitable for base course and concrete aggregate; subgrade conditions are poor to fair.  High water tables and seasonal flooding occur.  Foundation investigations and laboratory testing would be required to determine maximum permissible loading and other engineering properties.	Overburden soils are thin, usually less than 0.3 m (1 ft), and predominantly silty sand. Recent point bar deposits are usually devoid of overburden; however, relict bars on low terraces may have thin overburden; alluvium is underlain by all other units, but predominantly Map Unit 4.  Loose, unconsolidated soils are easily excavated by hand tools or power equipment. Locally, saturated clay may inhibit excavation; high water table would necessitate draglines or other special equipment for excavation of materials below the water table.  Excavation conditions: Slope stability—Observed slopes range from 1:1 to 2:1 with some near vertical along some streambanks, usually in clay materials.  Sliding and slumping—Shoring is not required for coarse materials above the water table but is required for excavations in clayey materials.  Erosion—All materials are easily and rapidly eroded.  Drainage—Above the water table, downward percolation is rapid except in clay layers; seepage may be rapid in excavations.	Some suitable sites are present on sand and gravel bars of larger streams; few are currently being exploited, and these are restricted to larger streams.
4. Pleistocene terrace deposits of sand and silt with lenses of clay and gravel (Williana, Bently, Montgomery, and Prairie Formations).	The terrace deposits occur predominantly along the southern portion of the Main Post area as undulating to rolling surfaces dissected by north-south trending streams; they also occur as isolated outcrops capping hilltops in the northern portion of the Main Post area and in the western portion of the Peason Ridge area and at slightly higher elevations along some of the major floodplains.	The geologic materials composing this map unit are the most diverse in the Study Area. The unit in its northernmost outcrops in the Main Post area consists predominantly of oxidized red and yellow quartz sand and clayey sand with rich lenses of brown chert gravel; the soils become finer farther south where they occur as red and brown deposits of argillaceous silts and fine sands and silty clays; younger deposits occurring along streams are predominantly gray and yellow fine sandy silts.	Sand clay gravel Sample Site No. B-4 <b>Sieve analysis:</b> Cumulative percent passing Large aggregate: 29 percent 1-1/2-in. (.86); 1-in. (.61); 3/4-in. (.21); 3/8-in. (<1) Small aggregate: 71 percent No. 4 (95); No. 8 (81); No. 40 (30); No. 200 (3) <b>Maximum density:</b> 2,048 kg/m <sup>3</sup> (128 lb/ft <sup>3</sup> ) <b>Optimum moisture:</b> 10 percent <b>Liquid limit:</b> 29 <b>Plastic limit:</b> 13 <b>Plasticity Index:</b> 16 <b>Specific gravity:</b> 2.50 to 2.56 <b>Coefficient of permeability:</b> 10 <sup>-6</sup> to 10 <sup>-8</sup> cm/sec (1.418 × 10 <sup>-3</sup> to 1.418 × 10 <sup>-5</sup> in./hr) <b>California bearing ratio:</b> 20 to 80  Sand clay gravel Sample Site No. B-6 <b>Sieve analysis:</b> Cumulative percent passing Large aggregate: 23 percent 1-1/2-in. (.100); 1-in. (.90); 3/4-in. (.62); 1/2-in. (.22); No. 4 (0) Small aggregate: 77 percent No. 4 (95); No. 10 (79); No. 40 (30); No. 100 (3); No. 200 (1) <b>Maximum density:</b> 2,064 kg/m <sup>3</sup> (129 lb/ft <sup>3</sup> ) <b>Optimum moisture:</b> 11 percent <b>Liquid limit:</b> 20 <b>Plastic limit:</b> 12 <b>Plasticity Index:</b> 8 <b>Specific gravity:</b> 2.50 to 2.56 <b>Coefficient of permeability:</b> 10 <sup>-6</sup> to 10 <sup>-8</sup> cm/sec (1.418 × 10 <sup>-3</sup> to 1.418 × 10 <sup>-5</sup> in./hr) <b>California bearing ratio:</b> 20 to 40  Sand (SM-SC) Site No. 11 <b>Sieve analysis:</b> Cumulative percent passing No. 40 (96); No. 50 (90); No. 70 (79); No. 100 (65); No. 200 (48) <b>Silt:</b> 33 percent <b>Clay:</b> 15 percent <b>Liquid limit:</b> 19 <b>Plastic limit:</b> 12 <b>Plasticity Index:</b> 7 <b>Specific gravity:</b> 2.67 <b>Coefficient of permeability:</b> 10 <sup>-6</sup> to 10 <sup>-8</sup> cm/sec (1.418 × 10 <sup>-3</sup> to 1.418 × 10 <sup>-5</sup> in./hr) <b>California bearing ratio:</b> 5 to 40  Clayey sand (SC) Site No. 2-5 <b>Sieve analysis:</b> Cumulative percent passing No. 20 (95); No. 50 (83); No. 70 (68); No. 100 (55); No. 200 (47) <b>Silt:</b> 10 percent <b>Clay:</b> 37 percent <b>Liquid limit:</b> 30 <b>Plastic limit:</b> 16 <b>Plasticity Index:</b> 14 <b>Specific gravity:</b> 2.69 <b>Coefficient of permeability:</b> 10 <sup>-6</sup> to 10 <sup>-8</sup> cm/sec (1.418 × 10 <sup>-3</sup> to 1.418 × 10 <sup>-5</sup> in./hr) <b>California bearing ratio:</b> 5 to 20	Alignments require moderate to moderately deep cuts and fills and bridges over most stream crossings. Airfield sites are limited to broad ridge crests.  Subgrade conditions are generally good except for clay areas; coarse materials are good for base course, fill, surface, and aggregate.  Water table is low except where low terraces flank floodplains and stream valleys; generally suited as sites for disposal of solid and liquid waste except where the water table is shallow or too much silt and clay occur causing runoff; too little silt and clay may allow too rapid infiltration into the ground water system.  When compacted and saturated, clay sands (SC) have good to fair shearing strength, low compressibility, and good workability; gravel-sand-clay mixtures (GC) are good to fair, very low, and good, respectively.  Subsurface foundation investigations and laboratory testing would be required to determine maximum permissible loading and other engineering properties.	Overburden soils consist predominantly of sandy silt and silty sand ranging from less than 0.3 m (1 ft) to 1 m (3 ft) in thickness; combined thickness of the terrace deposits may locally exceed 46 m (150 ft). The unit is chiefly underlain by Map Unit 1 in the southern portion of the Main Post area. Where exposed in the northern portion of the Main Post and Peason Ridge areas it is underlain by Map Unit 2.  The soils of this unit are easily excavated by hand tools or power equipment.  Excavation conditions: Slope stability—Observed slopes range from 1:1 to 1/2:1 and are near vertical in some excavations.  Sliding and slumping—Shoring is not usually required in excavations less than 9 m (30 ft) deep.  Erosion—Materials are not easily eroded.  Drainage—Drainage is generally poor; runoff rapid.	Numerous active and abandoned sand and gravel pits and potential sites are present; some suitable sites for sanitary landfill are present.

\* Data presented in this column are for selected representative sites.

The values of constants of component materials within a given map unit are highly variable. Data on selected samples are considered typical of a wide range of lithologic variations within each unit.

Sample locations are shown on the Engineering Geology Map. For samples from borings, the second number of the designation is the sample number (e.g., the data for "Boring U-1-2" are for Sample 2 from Boring U-1).

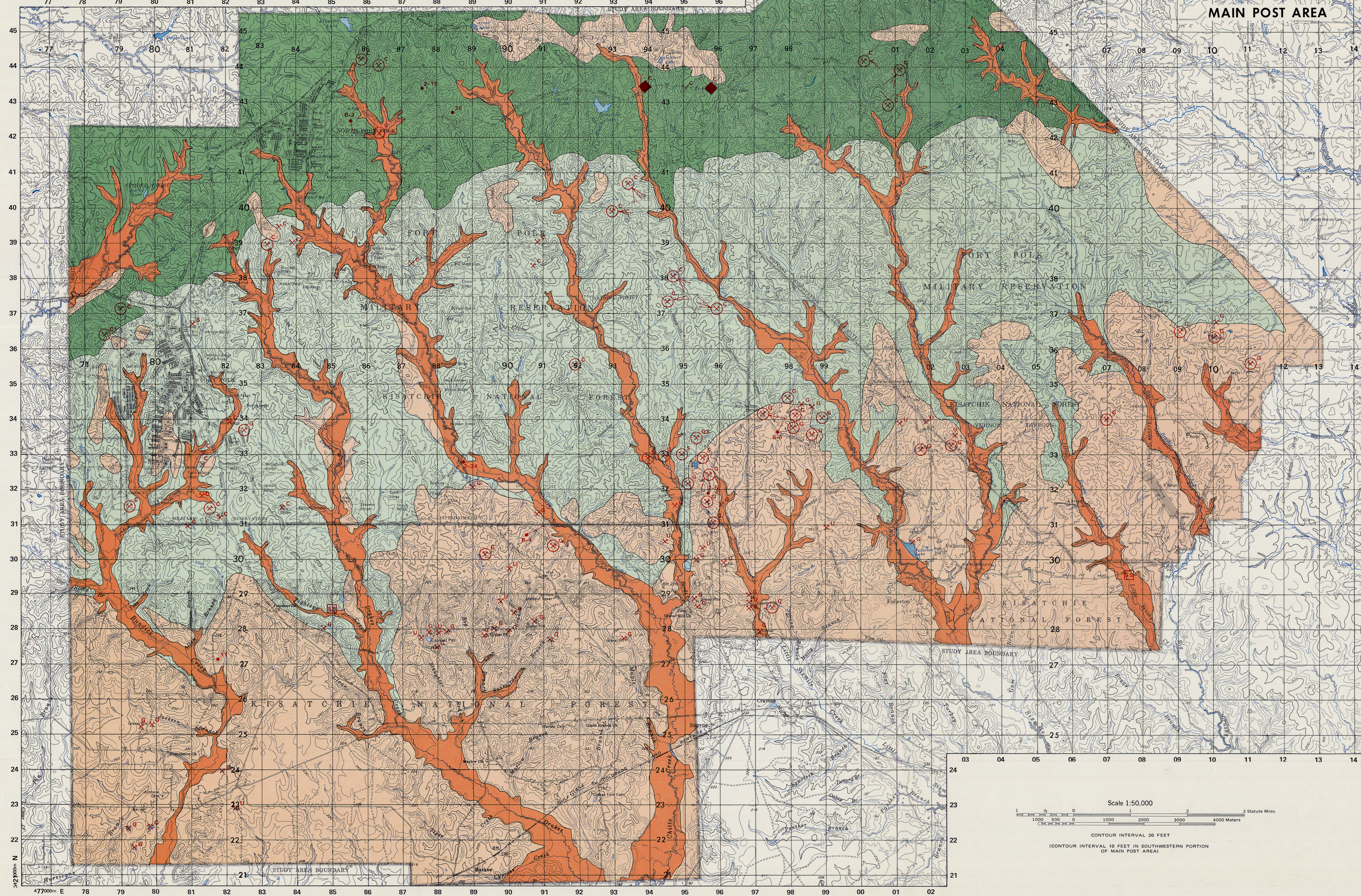
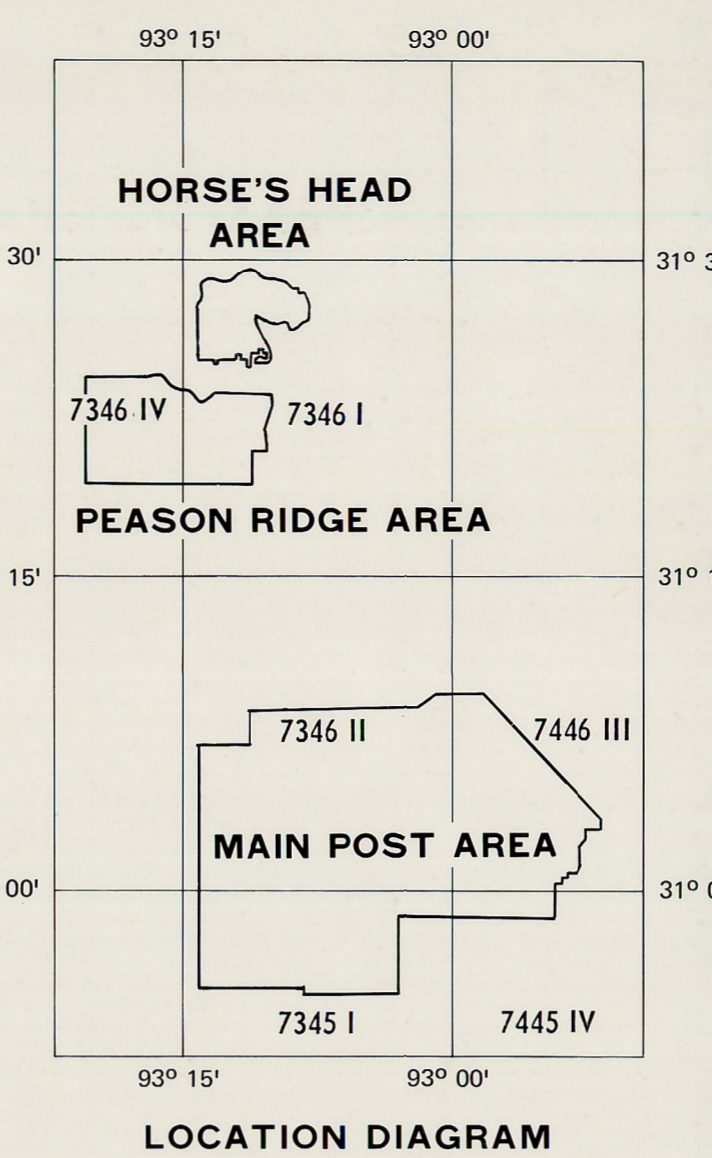
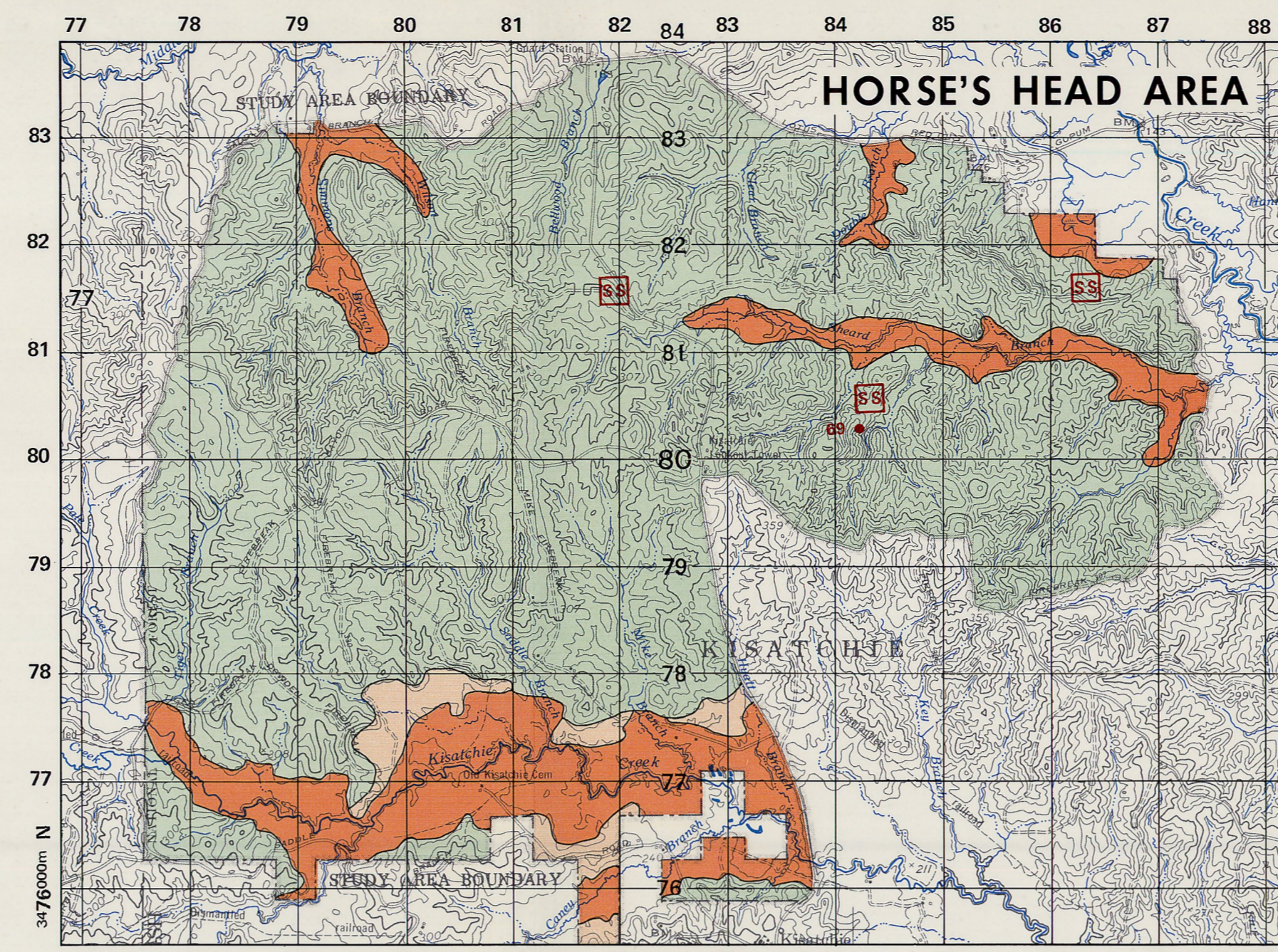
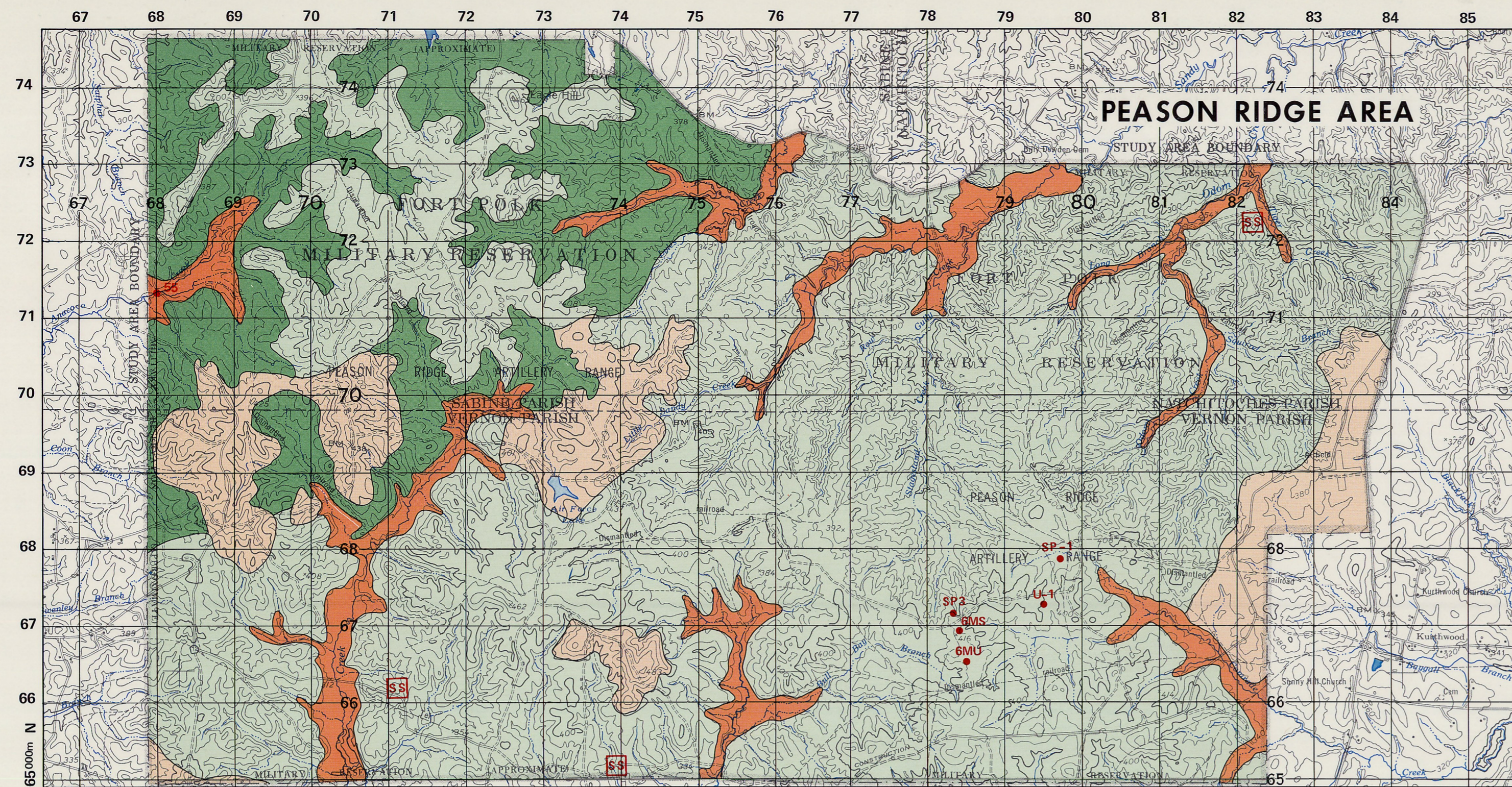
Sieve analyses, Atterberg limits, and density tests were performed using procedures described in **Engineering and Design, Laboratory Soils Testing**, Engineer Manual EM 1110-2-1906, 30 November 1970, Department of the Army, Office, Chief of Engineers, Washington, D. C.

The term "clay" is used for material having particles with diameters less than 0.002 mm (78.7 μ in.).

\*\* The water table has wide seasonal fluctuations. It is lowest on ridges and highest in valleys. Excavations may encounter small, perched water tables above impermeable lenses. The water table may also be low in areas where springs or seepage permits leakage from permeable beds.

F. SPECIAL PHYSICAL PHENOMENA

There are no special physical phenomena within the Fort Polk Study Area.



# FORT POLK, LOUISIANA

(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

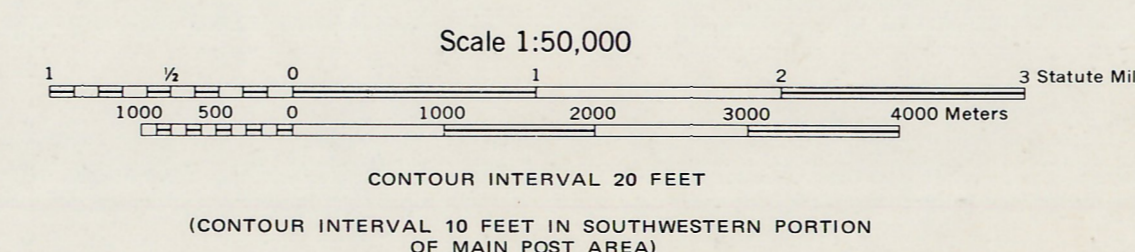
## TERRAIN ANALYSIS

### ENGINEERING GEOLOGY

- SOME ENGINEERING USES**
- 1. Layered mixtures of predominantly sand with silt and clay
  - 2. Thick layers of clays and silts separated by thin layers of predominantly sand
  - 3. Alluvium
- MANY ENGINEERING USES**
- 4. Pleistocene terrace deposits of sand and silt with lenses of clay and gravel
- Numbers refer to entries in Table E1

- CONSTRUCTION MATERIALS**
- Borrow pit; letter identifies material\*
  - Borrow pit; status and material undetermined; probable material indicated
  - Possible pit or quarry development site
  - Road-cut exposure; principal material indicated
  - Sample site number; see Table E1
- Note: Where used, leaders point to exact locations.

- \*TYPE OF MATERIAL**
- |                   |                      |                 |
|-------------------|----------------------|-----------------|
| C-Clay, Clayey**  | G-Gravel, Gravelly** | S-Sand, Sandy** |
| Slt-Silt, Silty** | SS-Sandstone         | U-Unknown       |
- \*\* May be indeterminate mixtures.



NOTE: Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, January 1978.

G. VEGETATION

Vegetation interpretations were made from 1:125,000-scale infrared aerial photography enlarged to a scale of 1:62,500, dated October and November 1974; this was supplemented by topographic maps, textual material, and field observations made during November 1976 and January 1977. The vegetation pattern on military-owned land changes frequently due to land clearing for various military purposes and on Forest Service land due to continual tree harvesting and reforestation.

In the Fort Polk Study Area, there are four major vegetation pattern types which are significant to military training or operations, forests, grasslands, agricultural lands, and wetlands.

Forests comprise the largest portion of the vegetation and cover about 95 percent of the Study Area. Of this 95 percent, nearly 75 percent is coniferous forest, and the remaining 20 percent is either mixed coniferous and deciduous forest or pure deciduous stands. Forests within the Study Area are managed with different techniques according to their type.

The major coniferous timber-producing species are loblolly, longleaf, and slash pine. The species are primarily managed to maintain stands that are even-aged. Timber sales are made year-round.

The major deciduous timber-producing species are sweetgum, water oak, swamp chestnut oak, willow oak, swamp tupelo, and beech. They are managed by a modified even-aged system or other silvicultural system where needed to attain special objectives in such areas as key bottomlands, wetlands, travel influence and water influence zones, stream filter and buffer strips, and habitats of threatened or endangered species of plants and animals. Timber sales are made year-round.

Grasslands make up about 2 percent of the Study Area. The grasses are generally less than 0.9 m (3 ft) high and are scattered throughout the Study Area. The grasslands may include some scattered coniferous and deciduous trees. Agricultural lands are generally privately owned and cover about 1 percent of the Study Area. These lands are used for field crops that may be rotated for row crops, small grain, and pasture. There are no agricultural lands in the Peason Ridge area.

Wetlands are represented by one swamp area in the southeast portion of the Main Post area that covers less than 1 percent of the Study Area.

Open areas (1 percent) and open water (less than 1 percent) cover the remainder of the Study Area. The open areas are either barren or contain built-up areas.

The vegetation types that afford the best cover and concealment possibilities for foot troops and vehicles are the denser stands of forest. The denser coniferous stands, scattered throughout the Study Area, afford year-round cover and concealment possibilities, while the mixed and deciduous stands offer the best conditions when the deciduous species are in leaf, April through October.

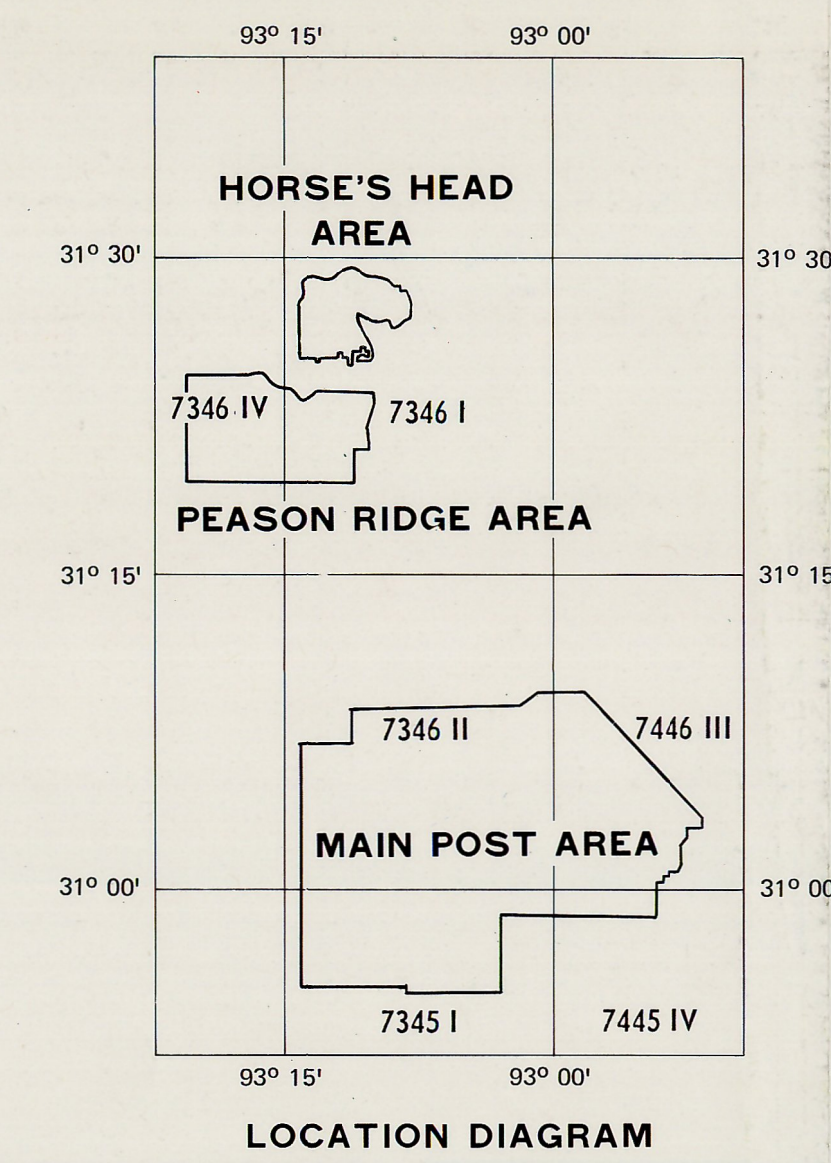
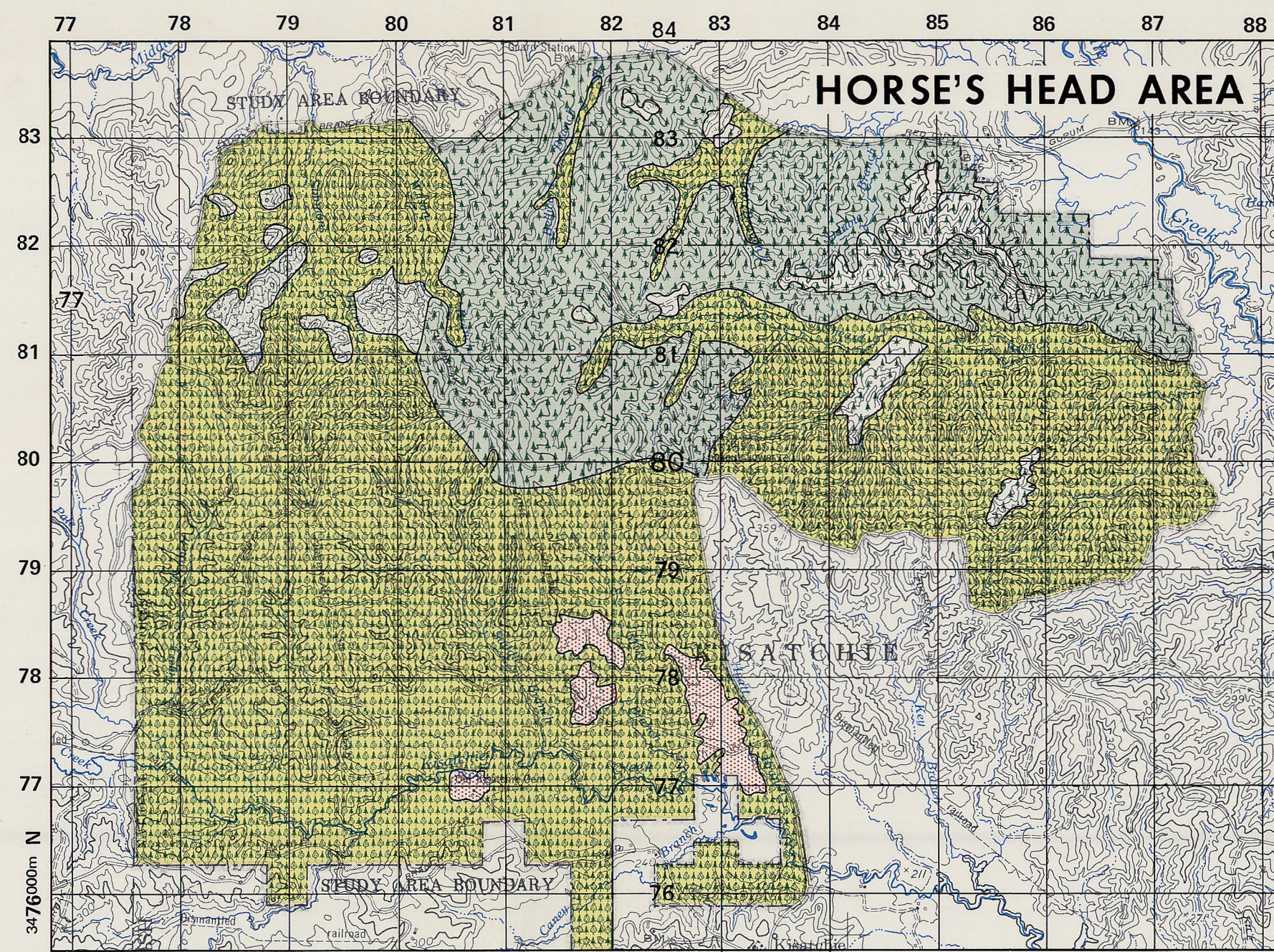
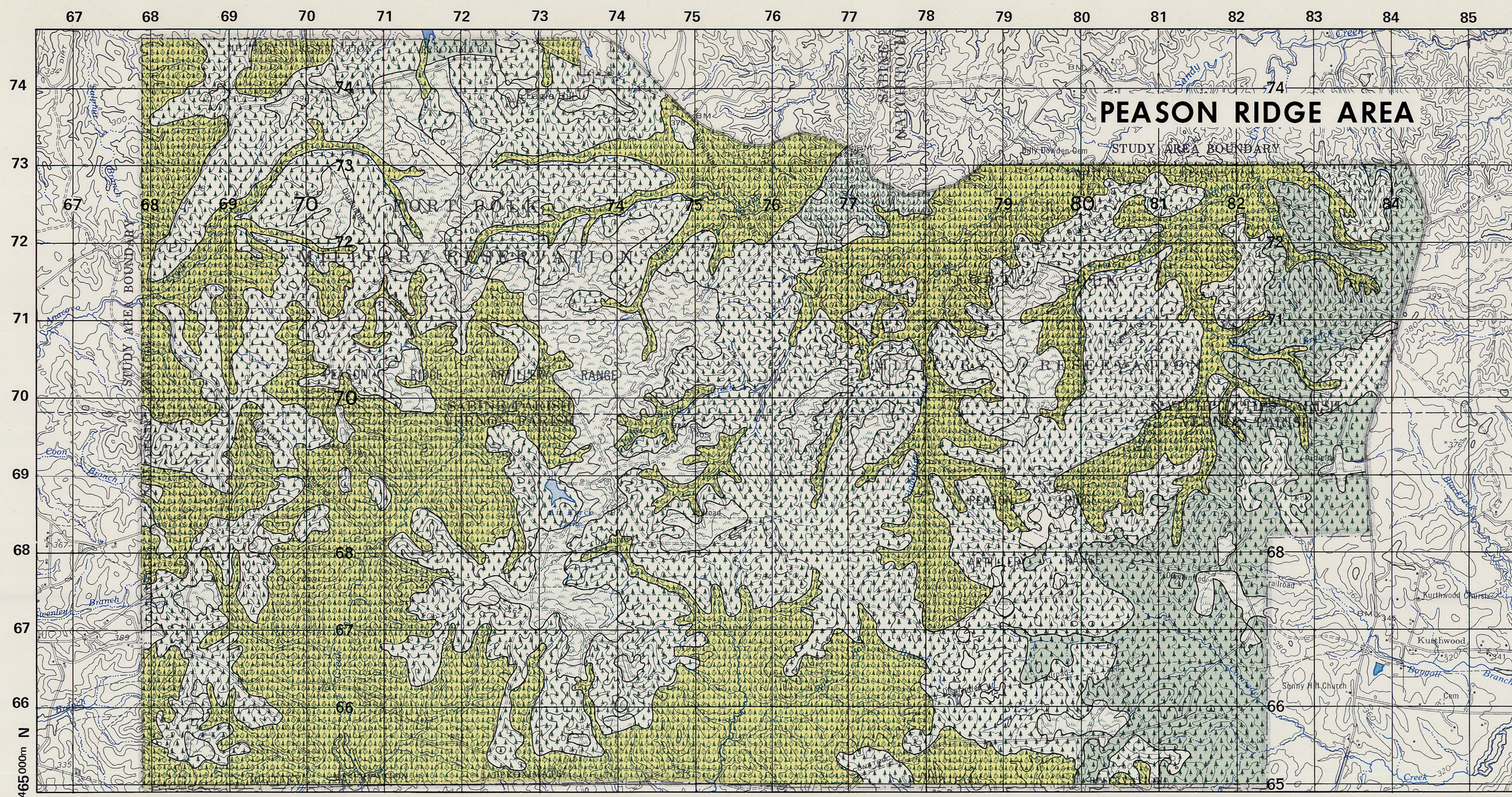
The location and extent of vegetation patterns by types and subtypes are shown on the accompanying Vegetation Map. Descriptive details of each map unit are included in Table G1 below.

TABLE G1. VEGETATION

MAP UNIT	DESCRIPTION	DISTRIBUTION	REMARKS	COVER *	CONCEALMENT **
1	Coniferous trees; largely loblolly, longleaf, and slash pine; 55 to 95 percent crown cover density; trunk diameters range from 2.5 to 40.6 cm (1 to 16 in.), majority greater than 19.0 cm (7.5 in.); tree heights range from 12.2 to 25.9 m (40 to 85 ft); branches of young trees extend to within 0.9 m (3 ft) of ground level; stem spacings range from 0.9 to 12.2 m (3 to 40 ft); some widely scattered open areas of grass and brush less than 0.9 m (3 ft) in height within stands; 75 percent or more of each stand composed of coniferous species.	Extensive stands located throughout the Study Area.	Stands are regrowth areas; many are harvested on an annual basis by designated area, usually by thinning, and in some cases by clear cutting; prescribed burning is carried out to remove rough accumulations for fire prevention and other management purposes.	Good in dense stands and fair in more widely spaced stands.	Concealment from aerial and ground observation is largely fair to good year-round.
2	Coniferous trees; largely loblolly, longleaf, and slash pine; 10 to 50 percent crown cover density; trunk diameters range from 2.5 to 61.0 cm (1 to 24 in.), majority greater than 22.9 cm (9 in.); tree heights range from 4.6 to 24.4 m (15 to 80 ft); branches of young trees extend to within 0.9 m (3 ft) of ground level and on scattered mature trees to within 9.1 m (30 ft) of ground level; stem spacings range from 2.4 to 17.4 m (8 to 57 ft); numerous small, clear areas within stands; 75 percent or more of each stand composed of coniferous species.	Extensive stands throughout the Main Post and Peason Ridge areas; smaller stands in the Horse's Head area.	Stands are regrowth areas; many are harvested on an annual basis by designated area, usually by thinning, and in some cases by clear cutting; prescribed burning is carried out to remove rough accumulations for fire prevention and other management purposes.	Generally poor to fair.	Concealment from aerial observation is largely poor to fair year-round; concealment from ground observation is generally fair year-round.
3	Deciduous trees; major species in bottomlands are sweetgum, water oak, swamp chestnut oak, willow oak, swamp tupelo, and beech; species on low terraces are white oak, red oak, hickory, and blackjack oak; 80 to 95 percent crown cover density; trunk diameters range from 2.5 to 71.1 cm (1 to 28 in.), majority greater than 21.6 cm (8.5 in.); tree heights range from 18.3 to 30.5 m (60 to 100 ft); stem spacings range from 2.4 to 8.2 m (8 to 27 ft); undergrowth of grass and brush less than 0.9 m (3 ft) in height; 75 percent or more of each stand composed of one or more deciduous species.	Three stands located in the Main Post area.	Stands are regrowth areas managed using a modified even-aged system or other silvicultural system.	Good.	Concealment from aerial and ground observation is largely good during the summer and poor to fair during the winter.
4	Deciduous trees; major species are sweetgum, water oak, swamp chestnut oak, willow oak, swamp tupelo, beech, white oak, red oak, hickory, and blackjack oak; 35 to 45 percent crown cover density; trunk diameters range from 2.5 to 71.1 cm (1 to 28 in.), majority greater than 21.6 cm (8.5 in.); tree heights range from 10.7 to 24.4 m (35 to 80 ft); branches of young trees extend to within 0.9 m (3 ft) of ground level and on mature trees to within 7.3 m (24 ft) of ground level; stem spacings range from 2.4 to 12.2 m (8 to 40 ft); sparse undergrowth of grass and brush less than 0.9 m (3 ft) in height; numerous small openings with scrub oak within stands; 75 percent or more of each stand composed of one or more deciduous species.	One stand within the Main Post area; several small stands in the Horse's Head area.	Stands are regrowth areas managed using a modified even-aged system or other silvicultural system.	Poor.	Concealment from aerial and ground observation is largely poor during the winter and fair during the summer.
5	Mixture of coniferous and deciduous trees; largely loblolly, longleaf, and slash pine, sweet gum, water oak, swamp chestnut oak, willow oak, swamp tupelo, beech, white oak, red oak, hickory, and blackjack oak; 60 to 95 percent crown cover density; trunk diameters range from 2.5 to 68.6 cm (1 to 27 in.), majority greater than 17.8 cm (7 in.); tree heights range from 15.2 to 27.4 m (50 to 90 ft); stem spacings range from 1.4 to 10.7 m (4.5 to 35 ft); each stand composed of a roughly equal distribution of coniferous and deciduous species.	Extensive stands throughout the Study Area.	Stands are regrowth areas managed using a modified even-aged system or other silvicultural system.	Good in dense stands and fair in more widely scattered stands.	Concealment from aerial and ground observation is fair to good year-round.
6	Mixture of coniferous and deciduous trees; largely loblolly, longleaf, and slash pine, sweetgum, water oak, swamp chestnut oak, willow oak, swamp tupelo, beech, white oak, red oak, hickory, and blackjack oak; 35 to 40 percent crown cover density; trunk diameters range from 2.5 to 61.0 cm (1 to 24 in.), majority greater than 17.8 cm (7 in.); tree heights range from 13.7 to 19.8 m (45 to 65 ft); stem spacings range from 2.6 to 15.2 m (8.5 to 50 ft); some patches of scrub oak less than 4.6 m (15 ft) in height within stands; sparse undergrowth of grass and brush less than 0.9 m (3 ft) in height within stands.	Stands in eastern half of the Main Post area and one area in the northern part of the Peason Ridge area.	Stands are regrowth areas managed using a modified even-aged system or other silvicultural system.	Poor.	Concealment from aerial and ground observation is poor to fair year-round.
7	Short grasses; major species are carpet grass, love grass, Bahia grass, and Bermuda grass; less than 0.9 m (3 ft) high; grass areas outside of cantonment areas including airfield, drop zones, and range areas; a few grassland areas include widely scattered trees, not exceeding 10 percent crown cover density of a particular area.	Throughout the Study Area.		None.	Concealment from aerial and ground observation is poor year-round.
8	Field croplands that may be rotated for row crops, small grain, and pasture.	Mostly located in the southern portion of the Main Post area; three sections in the Horse's Head area; none in the Peason Ridge area.	Privately owned or leased lands.	None.	Concealment for foot troops from aerial and ground observation is fair during the summer in row crops and small grain but poor in pasture lands.
9	Swamp of closely spaced predominantly deciduous trees with open water areas and small streams.	Along the southern reach of the East Fork of Sixmile Creek in the southeastern portion of the Main Post area.		Good in dense stands and none in open water areas.	Concealment for foot troops from aerial and ground observation is good during the summer but poor during the winter.

\* Evaluation of cover possibilities for foot troops from flat-trajectory fire of small arms.

\*\* Evaluation of concealment possibilities for foot troops and vehicles. (The growing season, or "summer," when deciduous trees are in leaf, lasts from April through October.)



# FORT POLK, LOUISIANA

(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

## TERRAIN ANALYSIS

### VEGETATION

#### FORESTS

- 1. Coniferous trees; medium to dense spacing
- 2. Coniferous trees; nearly open to medium spacing
- 3. Deciduous trees; medium to dense spacing
- 4. Deciduous trees; nearly open to medium spacing
- 5. Mixed coniferous and deciduous trees; medium to dense spacing
- 6. Mixed coniferous and deciduous trees; nearly open to medium spacing

#### GRASSLANDS

- 7. Short grasses

#### AGRICULTURAL LANDS

- 8. Field crops

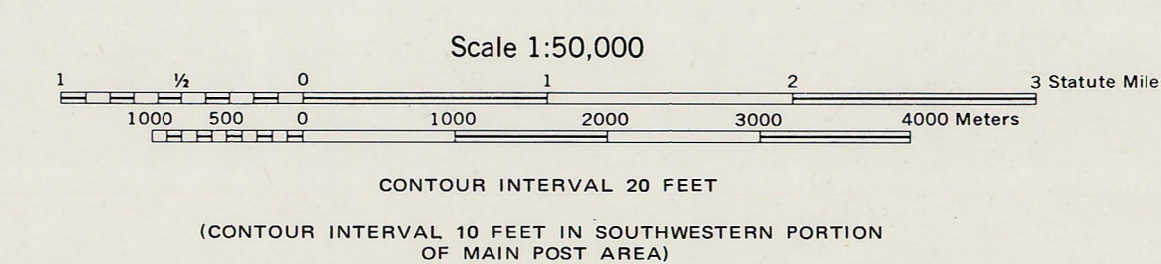
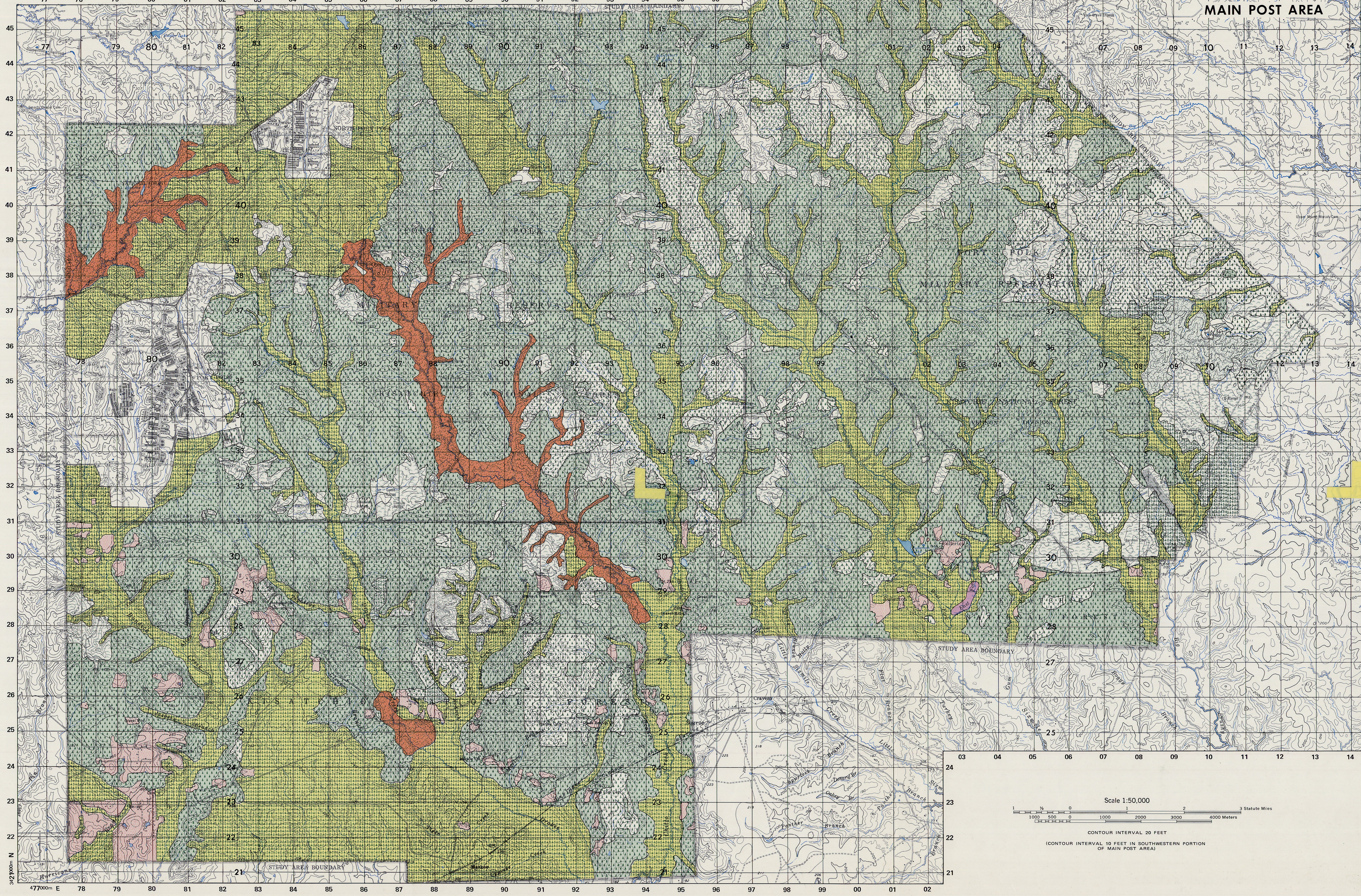
#### WETLANDS

- 9. Swamps; wet areas with over 50% trees

#### OPEN

- 10. Built-up, barren, and heavily used areas in which vegetation is not a significant factor

Numbers alongside each symbol refer to map unit numbers in the text



NOTE: Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, January 1978.

H. CLIMATE

The climate of that portion of west-central Louisiana in which the Fort Polk Study Area lies is classified as humid subtropical with long hot summers and mild winters. The Fort Polk Army Airfield meteorological station (73278) is located at 31°02'N, 93°11'W at an elevation of 101 m (330 ft) above sea level.

Prevailing winds are from the south during much of the year. Northerly winds accompany cold fronts as they move through the Study Area during the winter months. The warm moist maritime air from the Gulf of Mexico lessens extremes of summer heat and the duration of cold air masses which pass through periodically. Severe local storms such as hailstorms and tornadoes may occur over small areas during any season but most frequently during the spring. Tropical cyclones have usually lost most of their intensity by the time they reach the latitude of the Study Area, and the associated winds are not usually destructive.

Rainfall in the Fort Polk Study Area is generally heavy with yearly totals averaging 1346 mm (53 in.). Rainfall is most abundant during the winter and spring when monthly averages are

102 to 152 mm (4 to 6 in.). Minimum rainfall months occur during the fall, reaching an average low for the year in October with 76.5 mm (3.01 in.). Maximum monthly rainfall during the last 30 reporting years was 528.8 mm (20.82 in.) in May 1953, the abundance being the product of a tropical storm. Minimum monthly rainfall occurred during October 1952 and November 1967 when none to a trace was recorded.

The winter months in the Study Area are normally mild and periods of cold weather are brief. The coldest periods characteristically occur during December, January, and February. Snowfall is scant and usually totals less than 25.4 mm (1 in.) per year. The little snowfall that occurs is usually in January and February. Heavy snows are rare, although one in February 1960 produced 254 mm (10 in.). The summer months are consistently warm; however, temperatures in excess of 38°C (100°F) are uncommon because of the consistently high humidity of the maritime air mass and cooling effects of clouds, showers, and thundershowers.

The mean number of days with maximum temperatures greater than or equal to 32°C (90°F) (May–October) totals 95.

The annual yearly temperature in the Study Area is 19°C (66°F), and yearly variations are minimal. However, the average temperature during the winter months may vary significantly from one year to another, e.g. 6.7°C (44.1°F) in January 1966 and 15.8°C (60.5°F) in January 1952. The difference can be attributed to the contrasting influences of continental and maritime air masses. Monthly temperature differences during the summer will vary little from year to year, the temperatures being dominated by the hot humid maritime air masses.

Wind chill rarely exceeds -28.9°C (-20°F) during the winter months so that the possibility of frostbite from cold for adequately dressed troops is minimal. Heat stress conditions may occur during the summer at levels which make strenuous training activities unsafe.

See the following tables for summaries of climatic and ephemeral data.

TABLE H1. CLIMATIC SUMMARY  
Fort Polk AAF      Latitude 31°02'N      Longitude 93°11'W      Elevation 101 m (330 ft)

PARAMETER DESCRIPTION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	YEARS OF RECORD
Absolute maximum temperature	(°C)	27.2	30	31.6	33.3	35	37.7	40	40.6	38.3	35.6	31.1	26.7	40.6	23
Absolute maximum temperature	(°F)	81	86	89	92	95	100+	104	105	101+	96	88	80	105	23
Mean daily maximum temperature	(°C)	16.0	17.9	21.7	25.9	29.3	32.5	33.8	33.7	31.4	27.1	21.1	17.1	25.6	23
Mean daily maximum temperature	(°F)	60.8	64.3	71.1	78.7	84.7	90.5	92.8	92.7	88.6	80.7	69.9	62.8	78.1	23
Mean daily minimum temperature	(°C)	3.3	4.4	7.7	12.7	15.9	19.3	21.0	20.4	17.8	11.4	6.8	4.2	12.1	23
Mean daily minimum temperature	(°F)	37.9	39.9	45.8	54.8	60.7	66.8	69.8	68.7	64.1	52.5	44.3	39.6	53.7	23
Absolute minimum temperature	(°C)	-14.4	-13.9	-7.2	-1.7	3.9	8.9	11.7	9.4	1.7	-4.4	-7.2	-11.1	-14.4	23
Absolute minimum temperature	(°F)	6	7	19	29	39	48	53	49	35	24	19	12	6.0	23
Mean monthly temperature	(°C)	9.8	11.7	14.7	19.4	22.9	26.2	27.4	27.4	24.7	19.5	14.0	10.7	19.0	30
Mean monthly temperature	(°F)	49.7	53.0	58.4	67.0	73.2	79.1	81.4	81.4	76.4	67.1	57.2	51.3	66.3	30
Mean number of days with maximum temperature ≥32° C (90° F)	days	0	0	0	0	5	20	26	25	16	3	0	0	95	23
Mean number of days with minimum temperature ≤0.0° C (32° F)	days	12	8	4	0	0	0	0	0	0	1	5	10	40	30
Normal heating degree-days (base 18.3° C/65° F)	degree-days	489	356	246	51	0	0	0	0	0	76	246	425	1,889	30
Normal cooling degree-days (base 18.3° C/65° F)	degree-days	15	20	42	111	254	423	508	508	342	141	12	0	2,376	30
Mean dew point temperature	(°C)	3.9	5.6	8.3	13.3	17.2	20.6	22.2	21.7	18.9	12.8	7.8	4.4	13.3	13
Mean dew point temperature	(°F)	39	42	47	56	63	69	72	71	66	55	46	40	56	13
Mean relative humidity	percent	73	71	68	71	71	72	75	74	72	70	70	72	72	13
Mean monthly precipitation	(mm)	106.9	121.4	106.7	131.8	131.3	105.7	133.8	94.0	92.7	76.5	105.4	151.6	1,357.8	30
Mean monthly precipitation	(in.)	4.21	4.78	4.20	5.19	5.17	4.16	5.27	3.70	3.65	3.01	4.15	5.97	53.46	30
Mean number of days with precipitation ≥2.54 mm (0.1 in.)	days	7	7	6	6	6	5	7	6	6	4	5	7	72	23
Absolute maximum monthly precipitation	(mm)	274.8	372.1	213.6	349.3	528.8	248.4	294.1	258.1	300.1	281.2	347.0	280.9		23
Absolute maximum monthly precipitation	(in.)	10.82	14.65	8.41	13.75	20.82	9.78	11.58	10.16	11.85	11.07	13.66	11.06		23
Absolute minimum monthly precipitation	(mm)	22.9	13.2	17.3	3.3	50.3	7.4	42.2	10.9	14.0	0.0	T	23.9		23
Absolute minimum monthly precipitation	(in.)	0.90	0.52	0.68	0.13	1.98	0.29	1.66	0.43	0.55	0.0	T	0.94		23
Absolute maximum 24-hr precipitation	(mm)	106.7	279.4	105.4	214.6	206.2	118.9	109.2	126.2	122.9	122.7	86.9	94.7		23
Absolute maximum 24-hr precipitation	(in.)	4.20	11.0	4.15	8.45	8.12	4.68	4.30	4.97	4.84	4.83	3.42	3.73		23
Mean number of days with thunderstorms	days	2.1	2.8	4.5	5.7	6.2	7.7	11.7	9.1	4.4	2.8	2.5	2.1	61.6	13
Mean monthly snowfall	(mm)	5.08	12.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.78	23
Mean monthly snowfall	(in.)	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.70	23
Mean number of days with snowfall ≥38.1 mm (1.5 in.)	days	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	13
Mean pressure altitude	(m)	40.5	50.3	69.2	81.1	89.9	92.7	78.0	82.0	84.5	68.9	48.8	42.1	68.9	13
Mean pressure altitude	(ft)	133	165	227	266	295	304	256	269	277	226	160	138	226	13
Percent frequency of surface wind speed ≥51.9 kmph (28 knots or 32.2 mph)	percent	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13
Percent frequency of surface wind speed ≥31.5 kmph (17 knots or 19.6 mph)	percent	1.8	2.4	3.1	2.3	1.4	0.4	0.3	0.2	0.3	0.4	1.4	1.7	1.3	13
Mean number of days with surface wind ≥31.5 kmph (17 knots or 19.6 mph) and no precipitation	(at 1800 LST)	0.4	0.8	1.0	0.5	0.4	0.2	0.2	0.0	0.1	0.0	0.1	0.3	4.0	13
	(at 0000 LST)	0.2	0.5	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2	2.0	
	(at 0600 LST)	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.2	
	(at 1200 LST)	1.1	1.3	2.1	1.6	0.7	0.2	0.2	0.2	0.2	0.4	0.8	0.8	9.6	
Mean number days with surface wind 7.4 to 18.5 kmph (4 to 10 knots or 4.6 to 11.5 mph) and temperature 0.6° to 31.7° C (33° to 89° F) and no precipitation	(at 1800 LST)	17.1	15.4	19.2	21.0	20.2	13.6	10.8	11.3	14.3	12.2	15.2	16.3	186.6	13
	(at 0000 LST)	12.2	12.7	13.9	13.4	12.4	9.3	8.3	6.8	6.5	6.4	11.2	12.3	125.4	
	(at 0600 LST)	11.3	11.2	13.9	12.5	9.8	7.1	5.2	5.5	6.2	7.1	12.7	11.7	114.2	
	(at 1200 LST)	17.3	16.2	19.1	18.8	18.6	10.1	8.5	8.4	12.9	19.6	18.8	17.4	185.7	
Extreme wind speed (peak gust)	(kmph)	66.6	96.2	83.3	64.8	77.7	83.3	57.4	60.5	72.2	83.3	66.6	85.1	96.2	5
Extreme wind speed (peak gust)	(mph)	41.4	59.8	51.8	40.3	48.3	51.8	35.7	37.6	44.9	51.8	41.4	52.9	59.8	5
Mean number of days with an occurrence of visibility ≤0.8 km (0.5 mile)	days	4.2	2.2	2.3	2.7	3.3	1.7	2.1	2.3	2.3	4.7	2.6	3.2	33.6	13
Percent frequency ceiling ≤1524 m (5000 ft) or visibility ≤8.05 km (5 miles)	percent	39.9	38.5	35.5	34.2	27.5	18.3	14.8	13.4	19.9	20.1	31.9	35.4	27.5	13
Percent frequency ceiling ≤457 m (1500 ft) or visibility ≤4.83 km (3 miles)	(for 0000-0200 LST)	23.7	22.0	19.6	15.4	9.9	4.8	3.5	5.3	8.0	7.6	15.1	22.7	13.1	13
	(for 0300-0500 LST)	26.8	26.9	24.1	25.1	20.0	12.9	8.6	9.9	13.8	16.4	19.8	24.2	19.0	
	(for 0600-0800 LST)	30.7	32.9	29.3	34.6	29.7	17.2	14.5	15.1	24.4	28.9	26.5	30.3	26.2	
	(for 0900-1100 LST)	31.2	28.3	18.6	17.7	9.4	7.9	5.1	7.8	14.3	13.4	21.2	26.3	16.8	
	(for 1200-1400 LST)	20.2	16.6	12.1	6.7	2.9	3.1	1.9	1.5	5.6	5.1	13.0	20.3	9.1	
	(for 1500-1700 LST)	17.7	13.1	8.2	5.3	2.6	2.6	1.8	1.3	4.3	4.2	9.8	16.8	7.3	
	(for 1800-2000 LST)	15.9	12.8	8.7	4.6	2.8	3.0	1.5	0.6	4.4	3.2	10.4	16.5	7.0	
	(for 2100-2300 LST)	18.7	15.4	10.6	7.3	4.3	2.9	1.0	1.6	5.6	4.4	11.4	17.8	8.4	
Percent frequency ceiling ≤91 m (300 ft) or visibility ≤1.61 km (1 mile)	(for 0000-0200 LST)	5.2	2.8	2.1	1.4	1.3	0.6	0.9	1.3	1.3	1.7	2.1	5.3	2.2	13
	(for 0300-0500 LST)	7.0	4.8	4.3	6.2	4.6	3.1	3.4	4.7	3.7	6.0	6.0	7.1	5.1	
	(for 0800-0800 LST)	8.6	7.7	5.8	7.3	6.1	2.6	3.9	4.6	5.9	11.7	7.7	8.5	6.7	
	(for 0900-1100 LST)	5.1	3.1	0.8	0.3	0.2	0.3	0.2	0.1	0.1	1.1	2.5	5.3	1.6	
	(for 1200-1400 LST)	2.2	0.5	0.4	0.1	0.4	0.6	0.3	0.0	0.4	0.4	0.5	1.2	0.6	
	(for 1500-1700 LST)	1.2	0.5	0.1	0.3	0.4	0.6	0.1	0.1	0.0	0.1	0.8	1.0	0.4	
	(for 1800-2000 LST)	1.4	0.5	0.5	0.2	0.0	0.2	0.0	0.0	0.0	0.1	1.1	1.1	0.4	
	(for 2100-2300 LST)	2.5	1.0	0.9	0.5	0.0	0.0	0.0	0.2	0.3	1.3	0.6	1.6	0.7	
Mean number days with sky cover ≤30 percent and visibility ≥4.83 km (3 miles)	(at 1800 LST)	9.1	8.1	8.3	8.7	10.1	9.1	5.6	8.2	11.0	14.9	11.8	11.0	115.9	13
	(at 0000 LST)	11.8	11.0	12.3	14.2	17.4	18.6	19.3	20.2	18.9	20.6	14.1	13.6	192.0	
	(at 0600 LST)	10.2	7.9	8.7	6.6	6.1	10.2	9.1	9.7	11.2	12.9	11.0	12.2	115.8	
	(at 1200 LST)	7.2	7.7	8.6	5.5	5.5	3.8	2.2	5.5	7.7	11.6	10.1	9.2	84.6	
Mean number days with ceiling ≥305 m (1000 ft) and visibility ≥4.83 km (3 miles)	(at 1800 LST)	27.6	24.8	29.6	28.6	30.4	29.5	30.5	30.7	29.2	30.3	27.2	27.0	345.4	13
	(at 0000 LST)	26.0	24.1	28.0	28.2	29.0	29.1	30.2	29.9	28.8	29.4	27.0	25.4	335.1	
	(at 0600 LST)	23.7	21.1	23.9	22.4	22.8	25.2	25.6	25.3	22.7	22.7	24.0	23.7	283.1	
	(at 1200 LST)	26.1	24.6	28.7	28.9	30.5	29.3	30.5	30.8	29.1	29.9	27.1	25.6	341.1	
Mean number days with ceiling ≥610 m (2000 ft) and visibility ≥4.83 km (3 miles) and surface winds ≤18.5 kmph (10 knots or 11.5 mph)	(at 1800 LST)	21.6	19.5	19.5	22.0	25.4	25.3	27.7	28.8	27.1	286				

I. CROSS-COUNTRY MOVEMENT

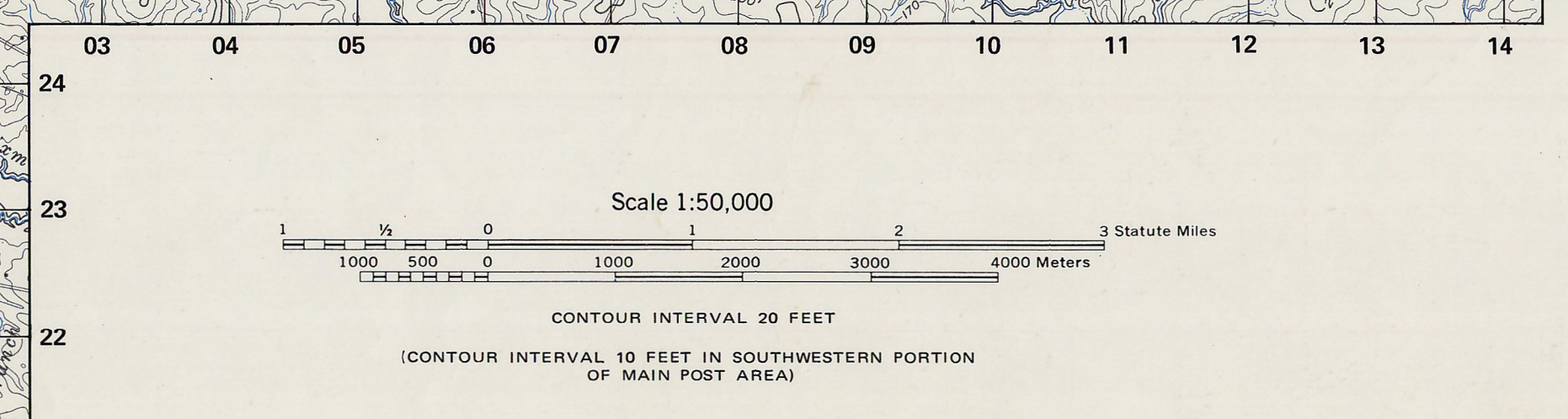
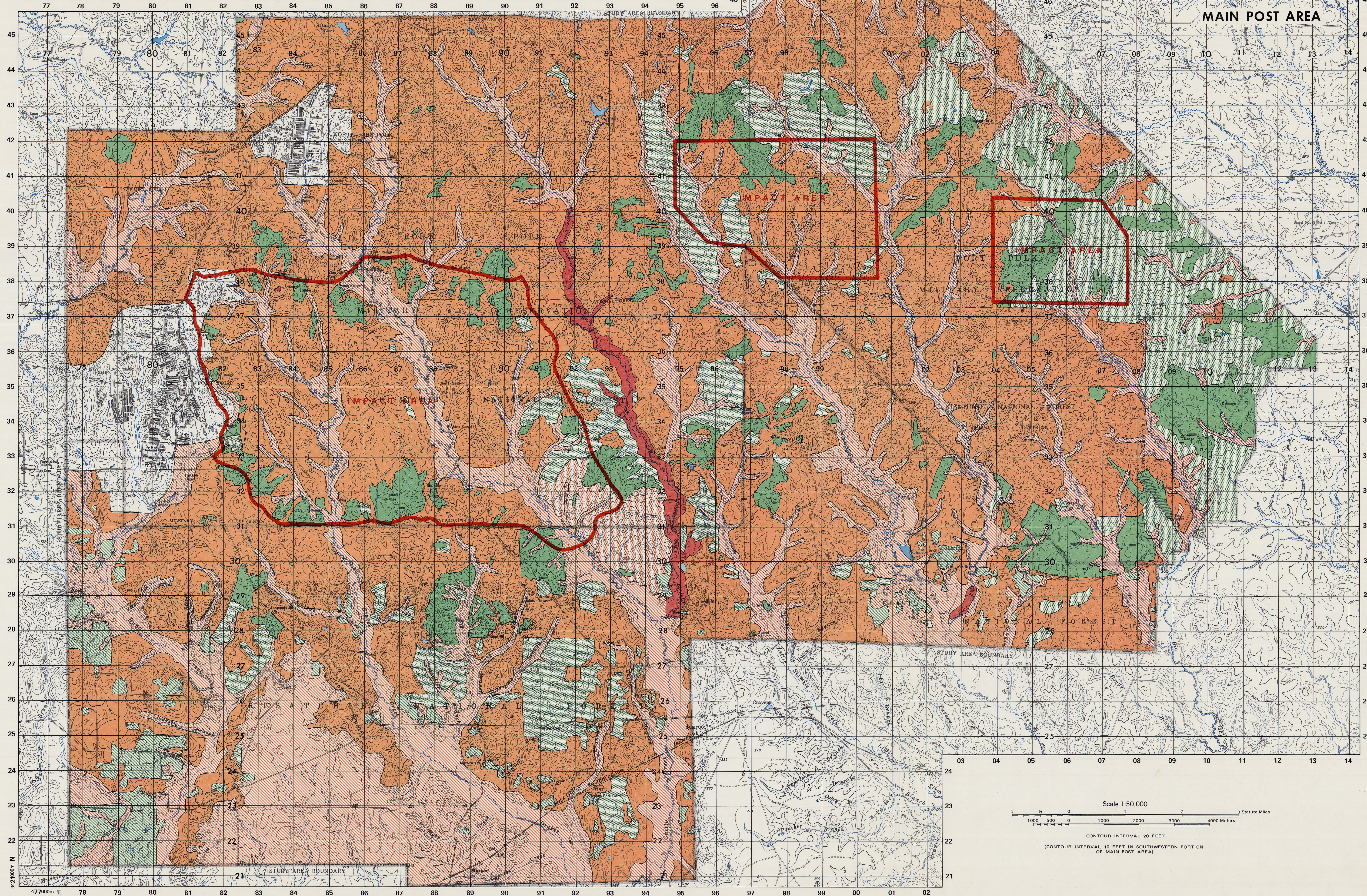
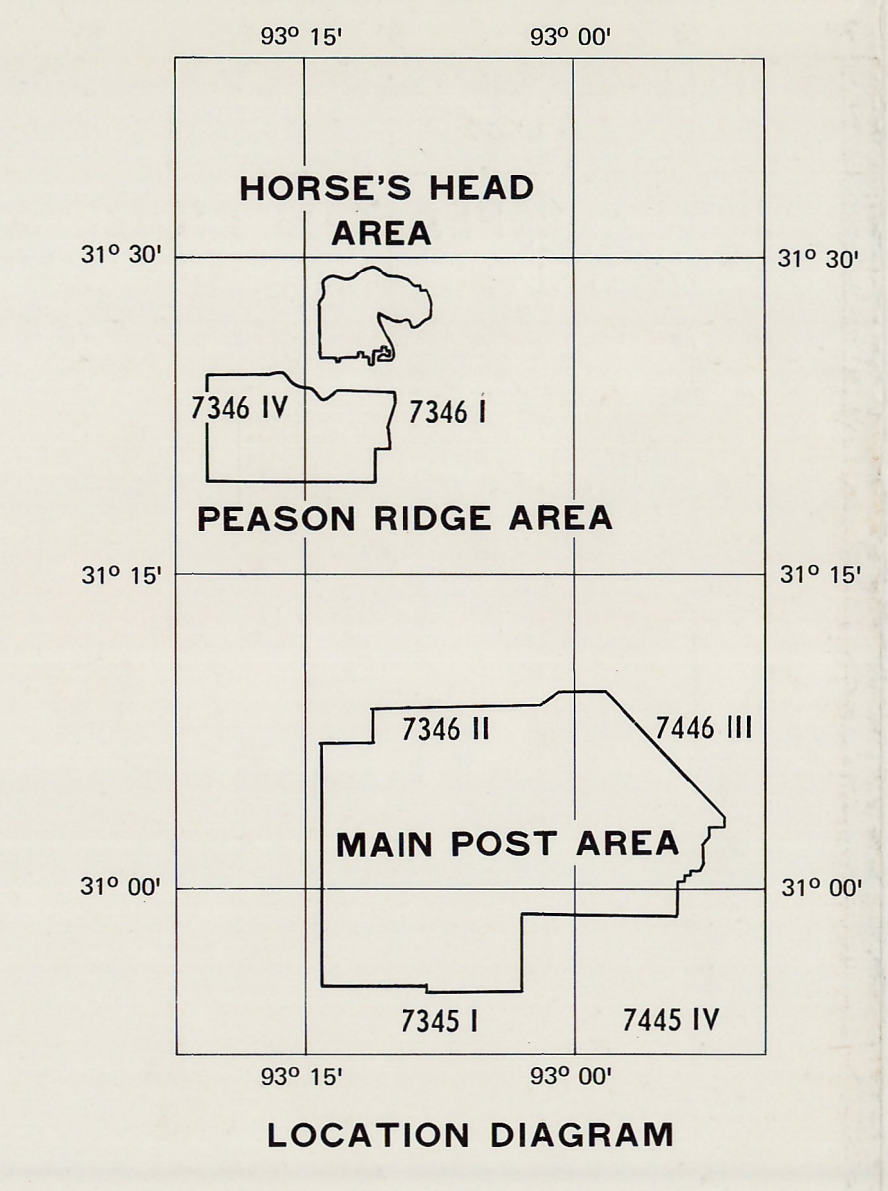
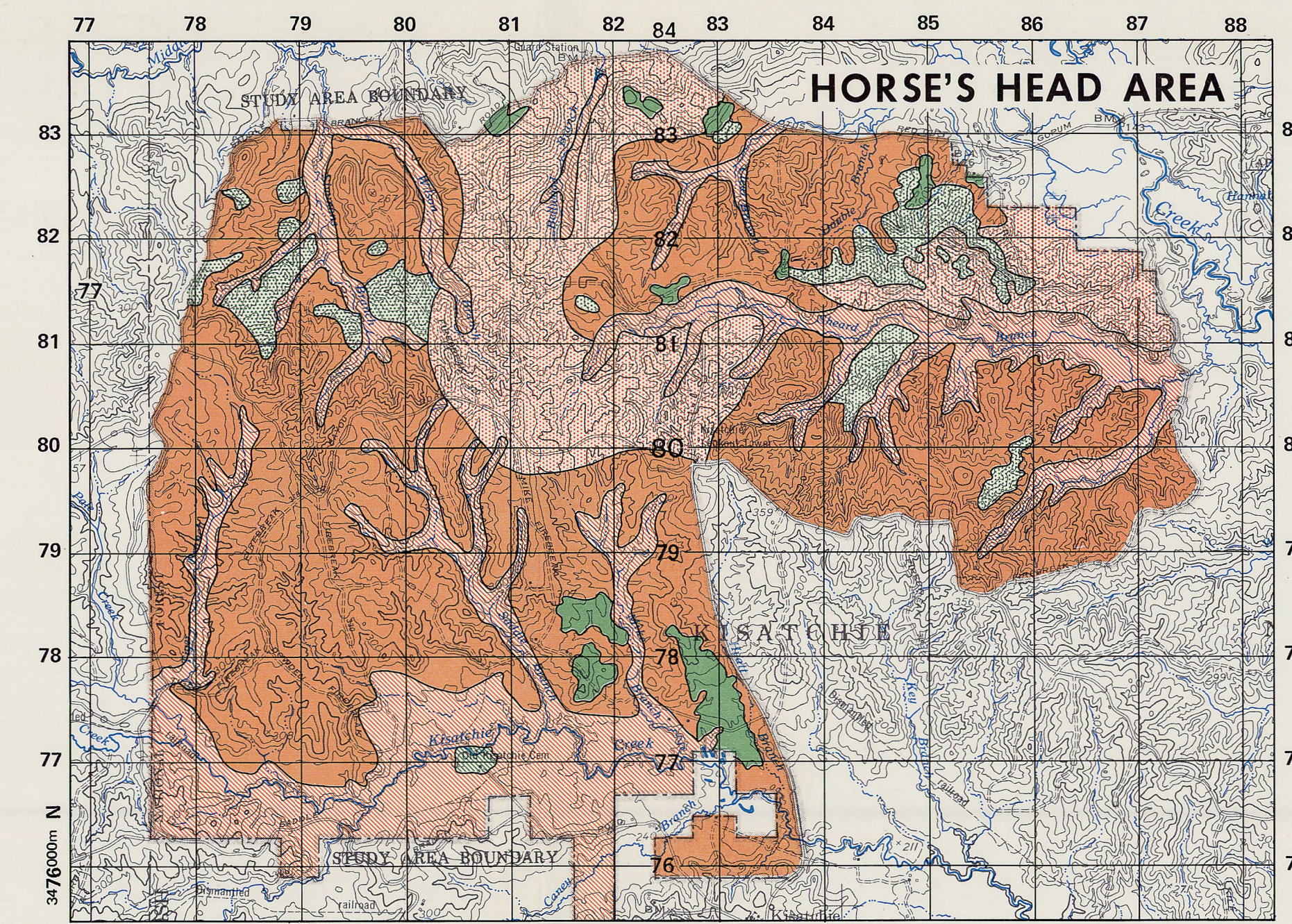
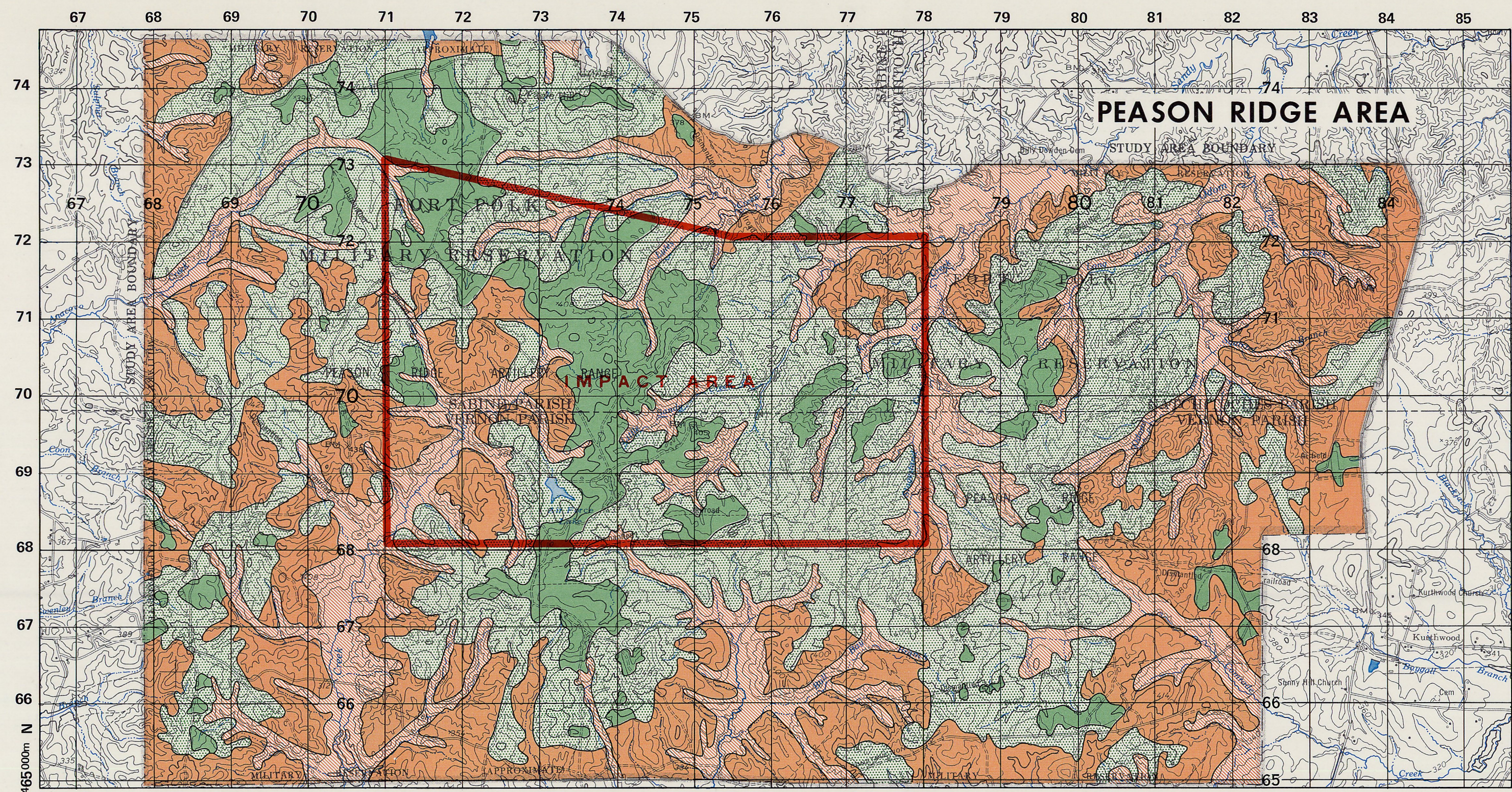
TABLE I1. GENERAL TERRAIN AND MOVEMENT DESCRIPTION

MAP UNIT	GENERALIZED TERRAIN CONDITIONS	MOVEMENT OF TRACKED VEHICLES*	MOVEMENT OF WHEELED VEHICLES**	MOVEMENT OF FOOT TROOPS
1	Open, very gently rolling to steeply sloping grass-covered uplands. Areas have been cleared of forests and are used for various training purposes (maneuver areas, firing ranges, etc). Slopes predominantly between 3 and 15 percent. Soils mostly silty sand except scattered areas where surficial soil is clayey due to severe erosion. Vegetation consists of grasses and other herbaceous growth; some small, scattered forest remnants. Some areas not fully utilized are covered with young pine.	Generally easy in any direction. Local obstructions easily bypassed. Restricted on clayey soil areas with moderate to steep slopes during and for several hours after intensive rainfall.† Grass cover reduces dust problems during maneuvers in dry weather. During wet season, movement is fair for both vehicles.	Easy in any direction. Restricted after intense rain on clayey soils, difficulty increasing with increase in slope. Upslope movement on sandy soils difficult where loosened and "fluffed" by previous vehicular traffic. Movement improves when sand is moist. During wet season, movement is fair for both vehicles.	Unhindered in most places. Slightly slowed in areas of young pine and cutover areas.
2	Open, cleared floodplains and low terraces. Most slopes between 0 and 3 percent. Vegetation mostly grass less than 0.9 m (3 ft) high. Outside main cantonment areas, grasslands include airfield, drop zones, and range areas. Widely scattered trees common in some grasslands. Soils are primarily silty sand, moderately well to well drained.	Unrestricted in any direction. Driver visibility may be reduced in areas with tall grass. Stream crossing generally difficult or impossible because of high vertical banks. During wet season, movement is fair for both vehicles.	Fair for M35A2, being restricted by driver visibility and maneuvering, but good for M151A2. M151A2 is slightly affected by maneuvering in small vegetation. During wet season, movement somewhat slowed by areas of soft soil.	Good, but may be reduced in areas with tall grasses. May be difficult when crossing streams with high vertical banks.
3	Sparsely to moderately dense forested low terraces and uplands. Most slopes range between 3 and 8 percent. Vegetation varies from mixed deciduous and coniferous on terraces to primarily coniferous on uplands. Trunk spacings and diameters highly varied; most trees about 3.0 to 12.2 m (10 to 40 ft) apart with diameters ranging from 10 to 25 cm (4 to 10 in.). Internal soil drainage varies from well-drained to small areas of poorly drained.	Slightly restricted by vegetation. Can be more restricted for maneuvering in more densely vegetated areas. Driver visibility may be reduced in grass- or brush-covered areas. During wet season, M60A1 is severely restricted but M113A1 remains only slightly restricted.	Slightly restricted by vegetation but remains fair. Affected by maneuvering in small vegetation. Driver visibility may be reduced in areas with undergrowth of tall grasses or small brush. During wet season, movement somewhat slowed by areas of soft soil.	Fairly easy in most areas. May be slightly slowed in grass- or brush-covered areas.
4	Moderately dense to densely forested uplands with a few open areas. Slopes range from 0 to 30 percent but most within 3 to 15 percent range. Predominantly coniferous trees. Trunk spacings and diameters highly varied; most trees 0.9 to 12.2 m (3 to 40 ft) apart with diameters ranging from 2.5 to 51 cm (1 to 20 in.). Soils are predominantly well-drained silty sands with some scattered areas of clays.	Restricted but remains fair as the vehicles are able to maneuver through and override vegetation. Movement may be reduced on steeper slopes. After heavy rain, may be reduced on steep slopes and clayey soils because of slipperiness. During wet season, movement remains fair for both vehicles.	Fair but both vehicles have to maneuver and override vegetation. May be reduced on steeper slopes. After heavy rains, may be reduced on steep slopes and clayey soils because of slipperiness. During wet season, movement remains fair for both vehicles.	Generally reduced because of combined effects of vegetation and slopes.
5	Moderately dense to densely forested floodplains and low terraces. Slopes range from 0 to 3 percent. Predominantly hardwood forest; some areas mixed. Trunk spacings and diameters highly varied; most trees about 0.9 to 9.1 m (3 to 30 ft) apart with diameters ranging from 2.5 to 38 cm (1 to 15 in.). Soils sandy silt or silty sand and poorly drained. During wet periods, soils commonly soft.	M60A1 is severely restricted but not stopped by dense vegetation, but M113A1 remains fair. Stream crossing difficult or impossible because of high vertical banks and vegetation. During wet season, movement of the M60A1 is prohibited by combination of dense vegetation and soft soil. Movement of M113A1 remains fair.	Poor because of relatively dense underbrush that reduces driver visibility. In areas free of underbrush, movement would be fair but vehicles still have to maneuver and override vegetation. Stream crossing difficult or impossible because of high vertical banks and vegetation. During wet season, movement of M35A2 generally prohibited; M151A2 severely restricted by poorly drained, soft soils.	Moderately reduced in more dense vegetation. May be difficult when crossing streams.
6	Moderately to steeply sloping, densely forested uplands. Most slopes between 8 and 30 percent. Trees coniferous; most are spaced about 0.9 to 12.2 m (3 to 40 ft) apart with diameters ranging from 3 to 41 cm (1 to 16 in.). Soils well-drained; predominantly silty sand with scattered clayey areas.	Prohibited for M60A1 and fair for M113A1 because of dense, large-stem vegetation. M113A1 may be further restricted on steep slopes and clayey soils after heavy rains. During wet season, movement of M113A1 remains fair.	Poor for M35A2 because of dense vegetation and steep slopes; less restricted and remains fair for M151A2. May be reduced on steep slopes and clayey soils after heavy rains. Movement of both vehicles remains the same during wet season.	Generally reduced because of combined effects of vegetation and steep slopes.
7	Nearly level, densely forested floodplains and low terraces. Vegetation dominated by dense assemblage of hardwood trees. Undergrowth typically dense; tangled vines and briars locally. Stumps and fallen trees common. Soils mostly poorly drained sandy silts or silty sands. Segments of some drainageways swampy with perennially soft and miry soils.	Prohibited because of dense vegetation and soft soils. Localized movement may be possible for M113A1 on areas of firm soil on low terraces.	Unsuited because of dense vegetation and soft soil. Localized movement may be possible on areas of firm soil on low terraces.	Severely reduced by dense vegetation with dense undergrowth. May be difficult when crossing streams.

\* Comments apply to the M60A1 tank and the M113A1 armored personnel carrier (APC).

\*\* Comments apply to the M35A2, 2268-kg (2-1/2-ton) truck and the M151A2, 227-kg (1/4-ton) truck.

† Rainy spells that adversely affect the bearing strength of soils can occur at any time throughout the year. However, they are most likely to occur between December and May.



# FORT POLK, LOUISIANA

(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

## TERRAIN ANALYSIS

### CROSS-COUNTRY MOVEMENT

**NOTE**

This map deals with cross-country movement, or movement away from roads, and is primarily intended for use in planning operations. For determining exact movement routes, reconnaissance on the ground is required. Data on terrain factors and evaluations are necessarily generalized to suit the scale of the map and scope of the study. Many areas of minor areal extent, such as tracks of forest, cleared areas, etc., are too small to depict. Recent or continuing alterations to the landscape, such as clearing operations for new or enlarged firing ranges, are not portrayed.

The depicted movement ratings are those believed to prevail during most of the year. Variations in these ratings may occur from year to year and even within a season because of abnormal weather conditions. The ratings will generally be degraded for short periods after heavy rains due to soft, muddy conditions in clayey soil areas and by swollen streams. These wet spells are most likely to occur between December and May. Areas with no color represent "builtup areas" and are not evaluated.

#### EVALUATION OF TERRAIN FOR CROSS-COUNTRY MOVEMENT

MAP UNIT	TERRAIN UNIT	PREDICTED MOVEMENT RATINGS FOR:									
		TANK (M60A1)		APC/M113A1		2½-TON TRUCK (M562)		½-TON TRUCK (M151A2)		FOOT TROOPS	
		DRY PERIOD	WET PERIOD	DRY PERIOD	WET PERIOD	DRY PERIOD	WET PERIOD	DRY PERIOD	WET PERIOD	DRY PERIOD	WET PERIOD
1	Open, cleared uplands.	Good	Fair	Good	Fair	Good	Fair	Good	Fair	Good	Good
2	Open, cleared floodplains and low terraces.	Good	Fair	Good	Fair	Fair	Fair	Good	Fair	Good	Good
3	Thinly wooded to moderately dense forested low terraces and uplands.	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good
4	Moderately dense to densely forested uplands; moderate to steep slopes	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
5	Moderately dense to densely forested floodplains and low terraces.	Poor	Unsuited	Fair	Fair	Poor	Unsuited	Poor	Poor	Fair	Fair
6	Densely wooded uplands; moderate to steep slopes.	Unsuited	Unsuited	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Fair
7	Densely wooded floodplains and low terraces containing areas of poorly drained soils or swamps.	Unsuited	Unsuited	Unsuited	Unsuited	Unsuited	Unsuited	Unsuited	Unsuited	Poor	Poor

#### EXPLANATION OF WET AND DRY PERIODS

**Dry Period** The period when soil moisture is relatively low and the water table has been lowered by actively growing vegetation. In most years this period extends from June through November. Unusual climatic variations may drastically alter this time period.

**Wet Period** The period when soil moisture is relatively high and the water table is raised mainly due to the dormancy of vegetation. In most years this period extends from about December through May. Wet periods, generally of short duration, may occur at other times of the year.

#### EXPLANATION OF RATING TERMS

**Good** Conditions permit free movement in any direction. Terrain will permit 12 or more passes in trace of an M60A1 tank or permit at least one maneuver (start, stop, sharp turns, or crossing of tracks) at one location.

**Poor** Conditions severely hinder progress or greatly restrict choice of movement routes. Terrain will probably permit up to 3 passes in trace of an M60A1. Very cautious driving required. Movement in trace should be avoided.

**Fair** Conditions moderately hinder progress or moderately restrict choices of direction for movement. Terrain will permit 3 to 12 passes in trace of an M60A1 but maneuvering will be difficult.

**Unsuited** Conditions prohibit all but local movement. Engineer work required for vehicular movement.

**NOTE:** Operation of vehicles in impact areas is prohibited because of danger from unexploded munitions.

**NOTE:** Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, January 1978.

J. LINES OF COMMUNICATION

1. ROADS

TABLE J1.1. ROADS

The road system in the Fort Polk Study Area is a fairly dense network consisting of Louisiana State hard-surface highways, military hard-surface roads, U. S. Forest Service hard-surface roads, loose-surface roads, unimproved dirt roads, and tank trails. Together they provide the Study Area with over 1719 km (1068 miles) of roads. All roads in the															
ROUTE NUMBER/ NAME	ROUTE LOCATION (GRID REFERENCE)		LENGTH OF SEGMENT		MILITARY LOAD CLASSIFI- CATION	ROUTE TYPE	SURFACE			SHOULDER			REMARKS		
	FROM	TO	km	miles			CONSTRUCTION MATERIALS	WIDTH		CONSTRUCTION MATERIALS	WIDTH			CONDITION	
								m	ft		m	ft			CONDITION
Main Post Area															
Artillery Road	848421	024458	20.3	12.6	No data	All weather	Bituminous	7.3	24	Good	Gravelly sand	2.7 to 3.7	9 to 12	Good	Can be used as tank trail.
Big Creek Road	024459	055439	4.8	3.0	No data	All weather	Clayey gravelly sand	7.3	24	Good	Gravelly sand	0.6	2	Good	
Birds Creek Road	884424	892382	5.0	3.1	No data	All weather	Bituminous	7.3	24	Good	Gravelly sand	2.4	8	Good	
California Avenue	809375	819346	3.2	2.0	No data	All weather	Bituminous	6.7	22	Good	Bituminous	3.0	10	Good	Can be used as tank trail from Entrance Road to Georgia Avenue.
Chaffe Road	815423	803369	5.8	3.6	No data	All weather	Bituminous	6.7	22	Good	Bituminous	3.0	10	Good	
Drakes Creek Road	881310	873283	3.2	2.0	No data	All weather	Clayey gravelly sand	7.3	24	Good	Gravelly sand	0.9	3	Good	
Dugout Road	953371	931431	5.8	3.6	No data	All weather	Bituminous	7.3	24	Good	Sand-sod	3.0	10	Good	Can be used as tank trail.
Entrance Road	860455	815415	7.4	4.6	No data	All weather	Bituminous	7.3	24	Good	Bituminous	1.8	6	Good	
Exchange Road	791376	803369	1.6	1.0	No data	All weather	Bituminous	6.7	22	Good	Bituminous	1.8 to 2.4	6 to 8	Good	
Fullerton Road	023303	057440	14.3	8.9	No data	All weather	Bituminous excluding 10.3 km (6.4 miles) clayey gravelly sand	6.1	20	Good to poor	Gravelly sand	2.4	8	Good to poor	Can be used as tank trail from Big Creek Road to Lookout Road.
Holly Springs Road	914364	973341	8.4	5.2	No data	All weather	Bituminous	7.3	24	Good	Gravelly sand	2.4	8	Good	Can be used as tank trail from Lookout Road to Dugout Road.
Jeanes Road	802305	877298	10.9	6.8	No data	All weather	Clayey gravelly sand	7.3	24	Good	Gravelly sand	0.9	3	Good	
Lookout Road	818328	009357	24.5	15.2	No data	All weather	Bituminous	7.6	25	Good	Gravel-sod	1.5 to 2.1	5 to 7	Good	
Louisiana Avenue	776354	819326	5.2	3.2	No data	All weather	Bituminous	7.3	24	Good	Bituminous	3.0	10	Good	Can be used as tank trail from Georgia Avenue to Lookout Road.
LA 10	776326	953256	19.5	12.1	No data	All weather	Bituminous	6.1	20	Good	Gravel	1.2 to 1.8	4 to 6	Good	
LA 392	777230	823235	5.0	3.1	No data	All weather	Bituminous	5.5	18	Good	Gravel-sod	1.2	4	Good	
LA 399	020276	023302	3.1	1.9	No data	All weather	Bituminous	6.1	20	Good	Gravel-sod	1.2	4	Good	
LA 399	959277	955318	4.3	2.7	No data	All weather	Clayey gravelly sand	4.9	16	Fair	Gravel-sod	1.2	4	Good	
LA 399	951209	954214	1.0	0.6	No data	All weather	Bituminous	6.1	20	Good	Gravel	1.2	4	Good	
LA 440	001276	017286	2.1	1.3	No data	All weather	Bituminous	6.1	20	Good	Gravelly sand	1.2	4	Good	
LA 463	082274	086299	2.6	1.6	No data	All weather	Bituminous	6.1	20	Good	Gravel-sod	2.4	8	Good	
LA 467	776407	791327	9.7	6.0	No data	All weather	Bituminous	6.7	22	Good	Gravel-sod	2.7	9	Good	
Mill Creek Road	809383	905381	10.1	6.3	No data	All weather	Bituminous	7.3	24	Good	Gravelly sand	3.0	10	Good	
Mississippi Avenue	803368	796327	4.3	2.7	No data	All weather	Bituminous	7.3	24	Good	Bituminous	3.0	10	Good	
Radio Road	796349	801355	0.8	0.5	No data	All Weather	Bituminous	6.1	20	Good	Gravel	1.2	4	Good	
Rose Pine Road	822235	848273	4.7	2.9	No data	All weather	Clayey gravelly sand	7.6	25	Good	Gravelly sand	1.2 to 1.8	4 to 6	Good	
Rustville Road	985333	002278	6.1	3.8	No data	All weather	Clayey gravelly sand	7.3	24	Good	Gravel-sod	1.2 to 1.8	4 to 6	Good	
Santa Fe Road	823235	872213	8.0	5.0	No data	All weather	Clayey gravelly sand	6.1	20	Good	Gravelly sand	1.2	4	Good	
Sixmile Creek Road	023303	126368	8.4	5.2	No data	All weather	Bituminous excluding 6.6 km (4.1 miles) clayey gravelly sand	7.3	24	Good	Gravelly sand	1.2	4	Good	
Sugartown Road	893310	942255	7.4	4.6	No data	All weather	Clayey gravelly sand	6.7	22	Good	Gravelly sand	1.2 to 1.8	4 to 6	Good	
Texas Avenue	805327	838434	9.8	6.1	No data	All weather	Bituminous	7.3	24	Good	Bituminous	3.0	10	Good	
Whiskey Chitto Road	898390	933317	7.1	4.4	No data	All weather	Bituminous	7.3	24	Good	Gravelly sand	3.7	12	Good	Objective is to grade roads monthly; more frequently if required. May become slippery and miry after heavy rains. Will not withstand day-to-day use.
Unnamed paved roads			16.1	10.0	No data	All weather	Bituminous	5.5 to 7.3	18 to 24	Good	Gravelly sand-sod	0.6 to 2.4	2 to 8	Good	
Unnamed loose-surface roads			273.6	170.0	No data	All weather	Clayey gravelly sand	4.9 to 7.6	16 to 25	Good to poor					
Unimproved dirt roads			711.3	442.0	No data	Fair weather	Sand and clay	2.7 to 7.3	9 to 24	Good to poor					Tank trails may or may not meet full military specifications—parts of trails under construction.
Tank trails			68.7	42.7	No data	All weather	Clayey gravelly sand	7.3 to 7.9	24 to 26	Good to poor					
Peason Ridge Area															
LA 117	837682	843730	5.1	3.2	No data	All weather	Bituminous	7.3	24	Good	Gravel-sod	1.2	4	Good	
LA 118	739746	787730	5.8	3.6	No data	All weather	Bituminous	5.5	18	Good	Gravel-sod	1.2	4	Good	
LA 392	679674	685678	1.3	0.8	No data	All weather	Bituminous	6.1	20	Good	Gravel-sod	1.2	4	Good	
Unnamed loose-surface roads			56.5	35.1	No data	All weather	Clayey gravelly sand	4.9 to 7.6	16 to 25	Good to poor					Objective is to grade roads monthly; more frequently if required. May be used as tank trail.
Unimproved dirt roads			225.5	140.1	No data	Fair weather	Sand and Clay	2.7 to 7.3	9 to 24	Good to poor					
Horse's Head Area															
Bayou Road	792796	828798	4.5	2.8	No data	All weather	Bituminous	5.5	18	Good	Sod	0.6 to 1.2	2 to 4	Good	
Bellwood Road	810802	812833	3.5	2.2	No data	All weather	Clayey gravelly sand	5.5	18	Good	Sod	0.6 to 1.2	2 to 4	Good	
Dowden Firebreak	786781	792796	3.2	2.0	No data	All weather	Clayey gravelly sand	5.5	18	Good	Sod	0.6 to 1.2	2 to 4	Good	
Longleaf Trail	818737	852829	3.2	2.0	No data	All weather	Bituminous	7.3	24	Good	Gravelly sand	1.8 to 2.4	6 to 8	Good	
LA 117	838762	818837	8.4	5.2	No data	All weather	Bituminous	7.3	24	Good	Gravel-sod	1.2	4	Good	
Mike Firebreak	810802	834774	4.5	2.8	No data	All weather	Bituminous excluding 2.6 km (1.6 miles) clayey gravelly sand	6.7	22	Good	Sod	0.6 to 1.2	2 to 4	Good	
Saddle Branch Road	838762	818837	10.9	6.8	No data	All weather	Clayey gravelly sand	4.3	14	Good	Gravel-sod	0.6 to 1.2	2 to 4	Good	
Sheard Road	857823	828798	9.0	5.6	No data	All weather	Clayey gravelly sand	6.7	22	Good	Gravelly sand	1.8 to 2.4	6 to 8	Good	
Tiger Firebreak	777777	792796	2.6	1.6	No data	All weather	Bituminous	2.7	9	Good	Sod	0.6 to 0.9	2 to 3	Good	
Wilson Road	805792	797831	3.9	2.4	No data	All weather	Clayey gravelly sand	5.5	18	Good	Sod	0.6 to 1.2	2 to 4	Good	Objective is to grade roads monthly; more frequently if required.
Unnamed loose-surface roads			67.6	42.0	No data	All weather	Clayey gravelly sand	4.9 to 7.6	16 to 25	Good to fair					
Note: Tank trail from Main Post area (859445) to Peason Ridge area (799650) consists of 22.7 km (14.1 miles) of bituminous and loose-surface road (all-weather road).															

TABLE J1.2. ROAD BRIDGES

Within the Fort Polk Study Area, there are 92 known road bridges; other bridges may exist in less accessible areas. Of these 92 known bridges, 36 are of concrete construction and 56 are of wooden construction. They range from good to poor in condition.																
BRIDGE NUMBER	ROUTE DESIGNATION	GRID REFERENCE	FEATURE CROSSED	MILITARY LOAD CLASSIFI- CATION	DIMENSIONS					CLEARANCE			TYPE CONSTRUCTION AND MATERIALS	CONDITION	REMARKS	
					LENGTH		WIDTH		ROADWAY WIDTH		HORIZONTAL					
					m	ft	m	ft	m	ft	VERTICAL	m				ft
					Main Post Area											
1	Unnamed road	793229	Hurricane Branch	No data	14.3	47	No data	6.6	21.5	Unlimited	6.8	22.5	Deck; treated timber with asphalt wearing surface	No data	Maintenance responsibility of Louisiana State Highway Department.	
2	Unnamed road	807229	Bundick Creek	No data	70.1	230	No data	6.6	21.5	Unlimited	6.8	22.5	Deck; treated timber with sand-gravel wearing surface	No data	Maintenance responsibility of Louisiana State Highway Department.	
3	Unnamed road	859240	Clear Branch	No data	12.2	40	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with sand-gravel wearing surface	No data	Maintenance responsibility of Louisiana State Highway Department.	
4	LA 10	868253	Drakes Creek	No data	23.5	77	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
5	LA 10	868253	Drakes Creek	No data	57.3	188	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
6	LA 10	874253	Drakes Creek	No data	12.2	40	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
7	LA 10	886253	Slaughter Branch	No data	23.8	78	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
8	LA 10	887253	Drakes Creek	No data	34.1	112	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
9	LA 10	947255	Whiskey Chitto Creek	No data	46.3	152	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
10	LA 10	948255	Whiskey Chitto Creek	No data	81.4	267	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
11	LA 10	952255	Whiskey Chitto Creek	No data	98.4	323	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	
12	Unnamed road	926241	Glade Branch	No data	6.4	21	No data	5.5	18	Unlimited	5.8	19	Deck; treated timber with gravel wearing surface	No data	Maintenance responsibility of Louisiana State Highway Department.	
13	LA 10	929254	Glade Branch	No data	17.7	58	No data	7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.	

1. ROADS (Continued)

TABLE J1.2. ROAD BRIDGES (Continued)

BRIDGE NUMBER	ROUTE DESIGNATION	GRID REFERENCE	FEATURE CROSSED	MILITARY LOAD CLASSIFI- CATION	DIMENSIONS				ROADWAY WIDTH		CLEARANCE			TYPE CONSTRUCTION AND MATERIALS	CONDITION	REMARKS
					LENGTH		WIDTH				HORIZONTAL					
					m	ft	m	ft	m	ft	VERTICAL	m	ft			
Main Post Area (Continued)																
14	Unnamed road	893235	Drakes Creek	No data	11.3	37	No data		4.3	14	Unlimited	Unlimited	Deck; treated timber with gravel wearing surface	No data	Maintenance responsibility of Vernon Parish.	
15	Unnamed road	817264	Bundick Creek	No data	29.3	96	No data		6.1	20	Unlimited	6.4	21	Deck; reinforced concrete	Good	
16	Unnamed road	797311	Bundick Creek	No data	7.6	25	9.7	31.8	8.5	28	Unlimited	9.3	30.5	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
17	Unnamed road	799314	Bundick Creek	No data	11.9	39	8.9	29.3	8.1	26.5	Unlimited	8.1	26.5	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
18	LA 10	811326	Bundick Creek	No data	29.6	97	No data		7.0	23	Unlimited	7.3	24	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
19	LA 10	809326	Bundick Creek	No data	12.2	40	No data		7.0	23	Unlimited	7.3	24	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
20	LA 10	795326	Hogpen Branch	No data	18.0	59	No data		7.0	23	Unlimited	7.3	24	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
21	Michigan Avenue	811335	Bundick Creek	No data	8.3	27.2	9.9	32.5	8.1	26.7	Unlimited	8.4	27.7	Deck; treated timber with asphalt wearing surface	Poor	Maintenance responsibility of Army.
22	Lookout Road	851311	Drakes Creek	No data	36.6	120	11.1	36.5	10.4	34	Unlimited	10.4	34	Deck; reinforced concrete	Good	Maintenance responsibility of Forest Service.
23	Lookout Road	861311	Drakes Creek	No data	12.2	40	11.3	37	10.4	34	Unlimited	10.4	34	Deck; reinforced concrete	Good	Maintenance responsibility of Forest Service.
24	Jeanes Road	857298	Drakes Creek	No data	17.4	57	No data		7.8	25.6	Unlimited	8.2	27	Deck; treated timber with gravel wearing surface	No data	Maintenance responsibility of Forest Service.
25	Lookout Road	916302	Whiskey Chitto Creek	No data	24.4	80	9.9	32.5	8.5	28	Unlimited	9.4	31	Deck; reinforced concrete	Good	Maintenance responsibility of Forest Service.
26	Lookout Road	923305	Whiskey Chitto Creek	No data	36.6	120	10.4	34.0	8.5	28	Unlimited	9.4	31	Deck; reinforced concrete	Good	Maintenance responsibility of Forest Service.
27	Lookout Road	949318	Birds Creek	No data	27.6	90.6	9.9	32.5	8.3	27.3	Unlimited	8.6	28.3	Deck; reinforced concrete	Fair	Maintenance responsibility of Forest Service.
28	Lookout Road	996337	West Fork Sixmile Creek	No data	35.0	115	9.5	31.3	8.2	27	Unlimited	8.5	28	Deck; reinforced concrete	Good	Maintenance responsibility of Forest Service.
29	LA 399	018291	West Fork Sixmile Creek	No data	17.7	58	No data		5.8	19	Unlimited	6.1	20	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
30	LA 399	021293	West Fork Sixmile Creek	No data	40.8	134	No data		6.8	22.5	Unlimited	7.2	23.5	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
31	Sixmile Creek Road	027299	East Fork Sixmile Creek	No data	11.8	38.9	11.0	36.0	8.2	26.9	Unlimited	8.5	27.9	Deck; treated timber with gravel wearing surface	Fair	Maintenance responsibility of Forest Service.
32	Sixmile Creek Road	033296	East Fork Sixmile Creek	No data	40.8	134	9.2	30.3	8.2	26.9	Unlimited	8.5	27.9	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Forest Service.
33	Sixmile Creek Road	074296	Little Brushy Creek	No data	17.7	58	9.2	30.3	8.2	26.9	Unlimited	8.5	27.9	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Forest Service.
34	LA 463	096315	Big Brushy Creek	No data	57.9	190	No data		7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
35	LA 463	105339	Thompson Creek	No data	12.0	39.5	No data		7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
36	LA 467	782378	Bayou Zourie	No data	40.5	133	No data		7.5	24.7	Unlimited	7.8	25.7	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
37	Mile Creek Road	823382	Drakes Creek	No data	7.6	25	9.8	32.0	8.5	28	Unlimited	9.3	30.5	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
38	Mill Creek Road	858384	Whiskey Chitto Creek	No data	24.4	80	10.0	32.7	8.5	28	Unlimited	9.6	31.5	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
39	Mill Creek Road	859385	Whiskey Chitto Creek	No data	24.4	80	10.0	32.7	8.5	28	Unlimited	9.5	31.2	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
40	Mill Creek Road	878385	Whiskey Chitto Creek	No data	14.3	47	8.8	29.0	7.9	26	Unlimited	8.1	26.8	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
41	Mill Creek Road	881384	Whiskey Chitto Creek	No data	15.2	50	9.4	31.0	8.5	28	Unlimited	9.0	29.4	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
42	Holly Springs Road	925366	Birds Creek	No data	30.5	100	9.5	31.2	8.5	28	Unlimited	9.1	30	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
43	Holly Springs Road	948371	Birds Creek	No data	12.2	40	No data		8.5	28	Unlimited	9.4	31	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
44	1st Street	843410	Whiskey Chitto Creek	No data	9.3	30.4	10.6	34.7	9.2	30.2	Unlimited	10.1	33.2	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
45	2nd Street	843412	Whiskey Chitto Creek	No data	7.6	25	10.4	34.2	9.0	29.7	Unlimited	10.0	32.7	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
46	3rd Street	843414	Whiskey Chitto Creek	No data	17.2	56.6	10.4	34.0	9.4	31	Unlimited	9.7	31.7	Deck; treated timber with concrete wearing surface	Fair	Maintenance responsibility of Army.
47	Artillery Road	867415	Whiskey Chitto Creek	No data	30.5	100	9.6	31.5	8.5	28	Unlimited	9.1	30.0	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
48	Artillery Road	899426	Birds Creek	No data	36.6	120	9.9	32.5	8.5	28	Unlimited	9.4	31	Deck; reinforced concrete	Good	Maintenance responsibility of Army.
49	LA 467	779386	Bayou Zourie	No data	12.0	39.5	No data		7.6	25	Unlimited	7.9	26	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
50	Birds Creek Road	949288	Birds Creek	No data	12.5	41	No data		3.8	12.5	Unlimited	4.1	13.5	Deck; concrete with gravel wearing surface	Good	Maintenance responsibility of Vernon Parish.
51	Sugartown Road	937262	Maple Branch	No data	12.5	41	No data		7.2	23.5	Unlimited	7.5	24.5	Deck; concrete with gravel wearing surface	Good	Maintenance responsibility of Vernon Parish.
52	Unnamed road	936269	Maple Branch	No data	5.5	18	No data		3.0	10	Unlimited	3.4	11	Deck; treated timber with gravel wearing surface	No data	Maintenance responsibility of Vernon Parish.
53	Unnamed road	947271	Birds Creek	No data	23.8	78	No data		4.3	14	Unlimited	4.6	15	Deck; treated timber with gravel wearing surface	No data	Maintenance responsibility of Vernon Parish.
54	Unnamed road	799255	Jackson Branch	No data	7.6	25	No data		4.3	14	Unlimited	4.6	15	Deck; treated timber with gravel wearing surface	No data	
55	Unnamed road	789285	Bundick Creek	No data	12.5	41	No data		7.3	24	Unlimited	7.6	25	Deck; concrete with gravel wearing surface	Good	
56	Unnamed road	791286	Bundick Creek	No data	18.3	60	No data		7.3	24	Unlimited	7.6	25	Deck; concrete with gravel wearing surface	Good	
57	Unnamed road	791286	Bundick Creek	No data	18.3	60	No data		7.3	24	Unlimited	7.6	25	Deck; concrete with gravel wearing surface	Good	
58	Rose Pine Road	823237	West Branch Black Creek	No data	10.7	35	No data		9.8	32	Unlimited	10.0	33	Deck; concrete with gravel wearing surface	Good	Maintenance responsibility of Forest Service.
59	Rose Pine Road	839264	Bundick Creek	No data	10.7	35	No data		7.0	23	Unlimited	7.3	24	Deck; concrete with gravel wearing surface	Good	Maintenance responsibility of Forest Service.
60	Unnamed road	850285	Tighteye Creek	No data	18.3	60	No data		7.2	23.5	Unlimited	7.5	24.5	Deck; concrete with gravel wearing surface	Good	Maintenance responsibility of Forest Service.
61	Unnamed road	860273	Drakes Creek	No data	29.3	96	No data		8.2	27	Unlimited	8.5	28	Deck; treated timber with gravel wearing surface	No data	Maintenance responsibility of Forest Service.
62	Fullerton Road	049432	Big Creek	No data	25.6	84	No data		4.0	13	Unlimited	4.3	14	Deck; treated timber	Poor	Maintenance responsibility of Army.
63	Unnamed road	966372	West Fork Sixmile Creek	No data	9.1	30	No data		3.0	10	Unlimited	3.4	11	Log bridge with 7.6- by 30.5-cm (3- by 12-in.) runners	Poor	Maintenance responsibility of Army.
64	Birds Creek Road	887328	Whiskey Chitto Creek	No data	29.3	96	No data		8.2	27	Unlimited	8.5	28	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
65	Birds Creek Road	884324	Whiskey Chitto Creek	No data	29.3	96	No data		8.2	27	Unlimited	8.5	28	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
66	Fullerton Road	015369	East Fork Sixmile Creek	No data	10.7	35	No data		4.3	14	Unlimited	4.6	15	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
67	Fullerton Road	016370	East Fork Sixmile Creek	No data	29.3	96	No data		4.0	13	Unlimited	4.3	14	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
68	Fullerton Road	025385	Brushy Creek	No data	5.8	19	No data		4.3	14	Unlimited	4.6	15	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
69	Fullerton Road	027387	Brushy Creek	No data	3.6	12	No data		4.3	14	Unlimited	4.6	15	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
70	Fullerton Road	029388	Brushy Creek	No data											Severely damaged	Bridge impassable; maintenance responsibility of Army.
Peason Ridge Area																
71	Peason Loop	818666	Comrade Creek	No data	14.0	46	7.6	25.0	6.6	21.7	Unlimited	6.9	22.5	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
72	Peason Loop	753651	Martin Creek	No data	17.2	56.6	6.7	22.0	6.0	19.6	Unlimited	6.5	21.3	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
73	Peason Loop	739651	Martin Creek	No data	6.1	20	8.8	28.8	8.1	26.5	Unlimited	8.4	27.5	Deck; treated timber with gravel wearing surface	Good	Maintenance responsibility of Army.
74	Peason Loop	714656	Dowden Creek	No data	12.2	39.9	6.7	22.0	5.7	18.8	Unlimited	6.0	19.8	Deck; treated timber with gravel wearing surface	Fair	Maintenance responsibility of Army.
75	Peason Loop	703663	Dowden Creek	No data	17.9	58.8	6.7	22.0	5.9	19.3	Unlimited	6.1	20.0	Deck; treated timber with gravel wearing surface	Fair	Maintenance responsibility of Army.
76	Peason Loop	680714	West Anacoco Creek	No data	14.0	46	8.0	26.5	6.7	22.1	Unlimited	6.9	22.8	Deck; treated timber with gravel wearing surface	Poor	Maintenance responsibility of Army.
77	Peason Loop	719744	Kib Bayou	No data	4.7	15.4	9.6	31.4	7.0	22.9	Unlimited	7.2	23.7	Deck; treated timber with gravel wearing surface	Good	Maintenance responsibility of Army.
78	LA 118	761733	Lyles Creek	No data	17.7	58	No data		5.8	19	Unlimited	6.1	20	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
79	LA 118	785728	Sandy Creek	No data	17.7	58	No data		5.8	19	Unlimited	6.1	20	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
80	LA 118	785728	Sandy Creek	No data	6.1	20	No data		5.6	18.5	Unlimited	5.9	19.5	Deck; treated timber with asphalt wearing surface	Good	Maintenance responsibility of Louisiana State Highway Department.
Horse's Head Area																
81	LA 117	838762	Kisatchie Creek	No data	97.5	320	No data		7.3	24	Unlimited					

2. RAILROADS

There are two railroads in the Fort Polk Study Area. The main line of the Gulf, Colorado, and Santa Fe crosses the south-central portion of the Main Post area; however, it furnishes no service to the Study Area. Rail freight service to the Main Post area is furnished by means of a government-owned spur track of the Kansas City Southern Railway

System. Branches of this spur provide service to the industrial and fuel storage sections of the Main Post area. There are two railroad bridges on the stretch of the Gulf, Colorado, and Santa Fe line in the Main Post area. Many other railroad spur lines existed in the Fort Polk Study Area from 1907 to 1927, but all were dismantled prior to 1957.

TABLE J2.1. RAILROADS

IDENTI- FICATION NUMBER	SEGMENT OF TRACK (GRID REFERENCE)		LENGTH OF SEGMENT		OWNERSHIP OF LINE AND CONDITION OF TRACK	CHARACTERISTICS OF TRACKS	CROSSOVER LOCATIONS	SIDINGS	BALLAST MATERIAL	VOLUME OF TRAFFIC	FACILITIES	REMARKS
	From	To	km	miles								
1	776374	806371	3.2	2.0	Government-owned (good condition)	Standard gage; single track; 39.7-kg/m (80-lb/yd) rails; 184-m (604-ft) minimum radius of curvature; less than 3 percent maximum grade	None	None	Crushed slag	25 cars per month	Industrial and fuel storage	Government-owned line extends 2.6 km (1.6 miles) west from the Main Post area to LA 171.
1	811381	805330	5.5	3.4	Government-owned (good condition)	Standard gage; single track; 39.7-kg/m (80-lb/yd) rails; minimum radius of curvature unknown; less than 3 percent maximum grade	None	From 807366 to 810358; 883.3 m (2898 ft) long	Crushed slag	25 cars per month	Industrial and fuel storage	
2	878207	953249	8.4	5.2	Gulf, Colorado, and Santa Fe (condition unknown)	Standard gage; single track; 39.7-kg/m (80-lb/yd) rails; minimum radius of curvature unknown; less than 3 percent maximum grade	None	From 885210 to 893212; 482.8 m (1584 ft) long	Crushed slag	No data	No data	Does not serve the Study Area.

TABLE J2.2. RAILROAD BRIDGES

IDENTI- FICATION NUMBER	LOCATION (GRID REFERENCE)	FEATURE CROSSED	NUMBER OF TRACKS	ROADWAY WIDTH		CLEARANCE		DECK MATERIAL	OVERALL LENGTH		TYPE OF STRUCTURE
				m	ft	HORIZONTAL	VERTICAL		m	ft	
1	908225	Drakes Creek	Single	2.6	8.7	Unlimited	Unlimited	Wood	125	410	Wooden
2	946246	Whiskey Chitto Creek	Single	2.6	8.7	Unlimited	Unlimited	Wood	140	459	Wooden

3. AIRFIELDS

Fort Polk Army Airfield is used by both military and commercial aircraft. Its facilities are considered adequate for current type, class, and volume of traffic.

TABLE J3. AIRFIELDS

NAME, LOCATION, TYPE, AND CLASSIFICATION	ELEVATION AND STATUS	RUNWAY DESCRIPTION	TAXIWAY, PARKING APRON, AND HARDSTAND AREA DESCRIPTION	BUILDING DESCRIPTION	POL FACILITIES	NAVIGATIONAL AIDS	REMARKS
Fort Polk Army Airfield; grid reference 818341; Army; airfield	100.6 m (330 ft) Operational	Dimensions: 1250 by 30.5 m (4100 by 100 ft) Azimuth: 150° to 330°  Weight bearing capacity: * S065 (29,500 kg), ST085 (38,500 kg) Surface material: hot-mix as-phalitic concrete Surface condition: good	Taxiway width: 12.2 m (40 ft) Taxiway surface material: hot-mix asphaltic concrete  Parking area (apron and hardstand) total area: 36,580 m² (393,750 ft²)  Parking area (apron and hardstand) surface material: hot-mix asphaltic concrete	Hangar(1): Building No. 4299 Dimensions: 45.7 by 61.0 by 13.7 m high (150 by 200 by 45 ft high) Construction material: concrete and galvanized metal  Repair shop: Building No. 4299 Floor space: 93 m² (1000 ft²) Construction material: concrete and galvanized metal  Administration building: Building No. 4228 Floor space: 145 m² (1560 ft²) Construction material: concrete frame  Operations building: Building No. 4226 Floor space: 473 m² (5095 ft²) Construction material: concrete frame  Fire station: Building No. 4225 Floor space: 117 m² (1260 ft²) Construction material: concrete frame  Control tower: Building No. 4221 Floor space: 37 m² (400 ft²) Construction material: frame (3 story)  Generator house: Building No. 4227 Floor space: 9 m² (96 ft²) Construction material: concrete frame  Link trainer: Building No. 4230 Floor space: 74 m² (800 ft²) Construction material: concrete and galvanized metal  Aviation fuel storage building: Building No. 4293 Floor space: 13 m² (144 ft²) Construction material: concrete and galvanized metal Fuel tank capacity: 102,000 liters (27,000 gal) total in 3 steel tanks  16 other buildings: Building Nos. 4231, 4233, 4240, 4241, 4245, 4246, 4247, 4248, 4249, 4250, 4251, 4253, 4254, 4255, 4256, and 4257 Floor space (each): 74 m² (800 ft²) Construction material: frame  Rotating beacon tower: Building No. 4220 Height: 16.8 m (55 ft) Construction material: steel  Antenna tower: Building No. 4219 Height: 21.3 m (70 ft) Construction material: wood poles	Fuel types: 115/145 grade and JP4 Reciprocating engine oils: grades 1065 and 110  Synthetic base oils: turbine, engine, turboprop, and turboshaft engine  Fuel storage and dispensing facilities: 3 storage tanks of 34,000 liters (9,000 gal) each; 3 fuel dispensing nozzles	Control tower, 10.7 m (35 ft) high  VHF Omnidirectional Range (VOR) and Nondirectional Beacon (NDB) final approach fan markers  Lighting: Runway lights Runway end identifier lights (threshold strobe lights)	This airfield can withstand approximately 1 cycle per week of a C-130 Hercules with a gross weight of 56,245 kg (124,000 lb).  Restricted areas are located due north, east, northeast, and southeast of the airfield area.  A new control tower with a height of 21.9 m (72 ft) is being constructed. A new generator house will be constructed behind the new control tower.

\* Runway weight bearing capacity (gross weight of aircraft), in thousands of pounds, is shown by the three digits following the landing gear type designation. "S" designates a single-wheel type landing gear, such as that of a C-47 or F-100; "ST" designates a single-landem type landing gear, such as that of a C-130. Thus, the first entry here, "SO65," denotes that this runway will sustain operations of an aircraft having a single-wheel type landing gear and a gross weight of 65,000 lb. The runway weight bearing capacity is also shown here in metric (SI) units. The capacity given is for unlimited operations of the specified aircraft type. Operations of aircraft having gross weights higher than the stated capacity require prior permission from the aerodome controlling authority.

4. PIPELINES

Natural gas is supplied to the cantonment areas by United Gas Pipeline Company. The 1975 gas contract guaranteed delivery of a minimum of 12,155 m³/hr (10,302,000 ft³/day) with a maximum of 15,450 m³/hr (13,095,000 ft³/day). The maximum consumption rate in 1975 was 10,619 m³/hr (9,000,000 ft³/day).

TABLE J4. PIPELINES

MAP NUMBER	GRID REFERENCE		STATUS	OWNERSHIP	PIPELINE CHARACTERISTICS										TANK CROSSING SITES	REMARKS
	From	To			DIAMETER		TOTAL LENGTH IN STUDY AREA		MATERIAL NORMALLY CARRIED	RATED CAPACITY		ACTUAL THROUGHPUT				
					cm	in.	km	miles		m³/hr	ft³/day	m³/hr	ft³/day			
1	776337	834415	Operational	United Gas Pipeline Company	20.3	8	10.5	6.5	Natural gas	5,923	5,020,000	2,360	2,000,000	None	This is an underground pipeline. No data were available on depth of burial.	
2	920454	968278	Operational	Tennessee Gas Transmission Company	50.8	20	19.0	11.8	Natural gas	371,659	315,000,000	No data	No data	None	This is an underground pipeline. No data were available on depth of burial.	
3	128367	076274	Operational	Trunkline Gas Company	66.0	26	6.1	3.8	Natural gas	2,123,764	1,800,000,000	1,415,842	1,200,000,000	None	This is a system of three underground pipelines paralleling each other along the same right-of-way. Rated capacity and actual throughput are totals for all three. No data were available on depth of burial.	
					76.2	30	6.1	3.8	Natural gas							
					91.4	36	6.1	3.8	Natural gas							

5. HELICOPTER LANDING ZONES

Helicopter landing zones of various sizes are located in open sections scattered throughout the Main Post area and are used as required for air-mobile operations. There are no helicopter landing zones in the Horse's Head area.

The small aircraft landing strip in the Peason Ridge area has been closed to fixed-wing aircraft; however, it is currently being used as a helicopter landing zone.

TABLE J5. HELICOPTER LANDING ZONES

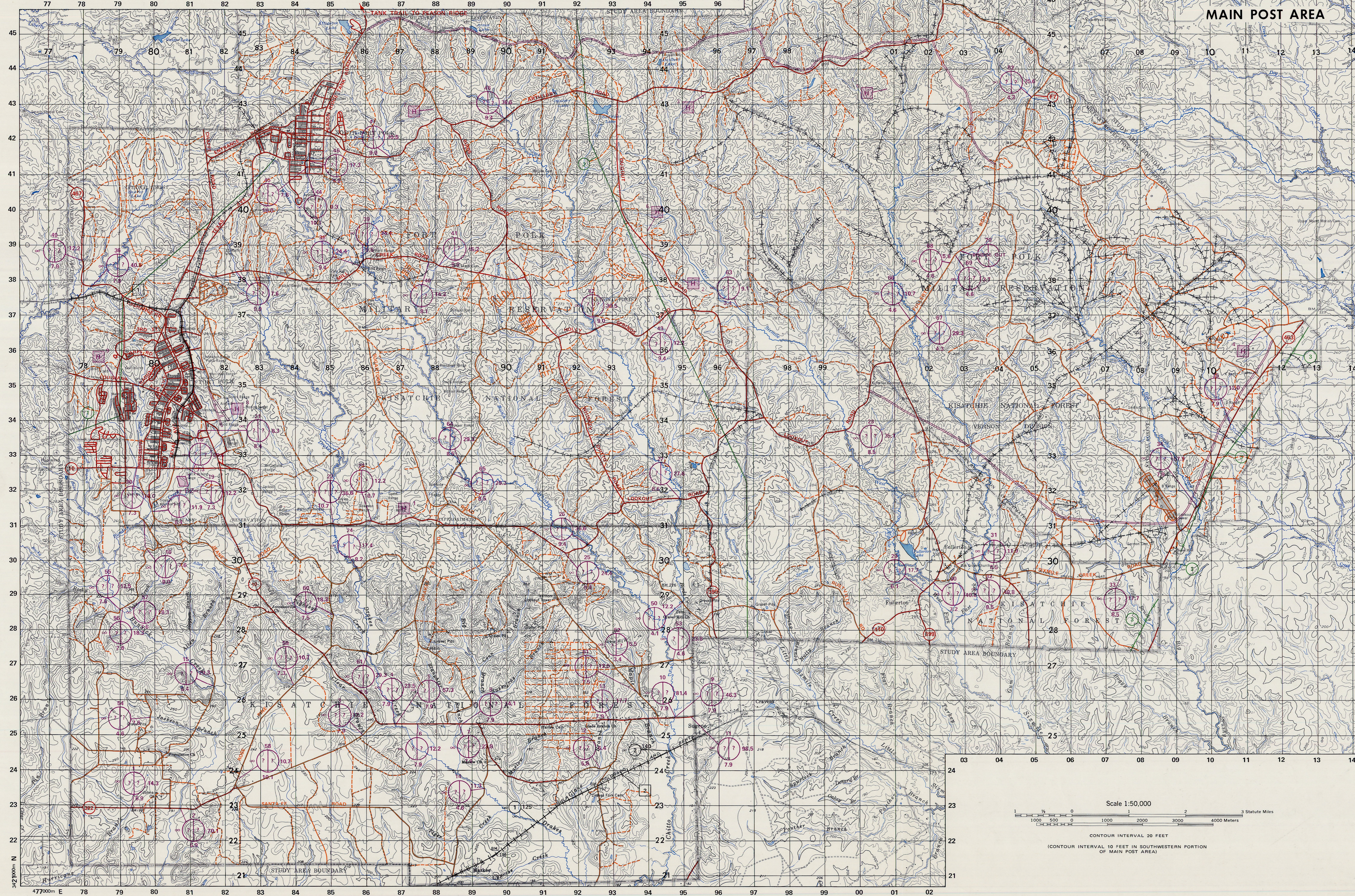
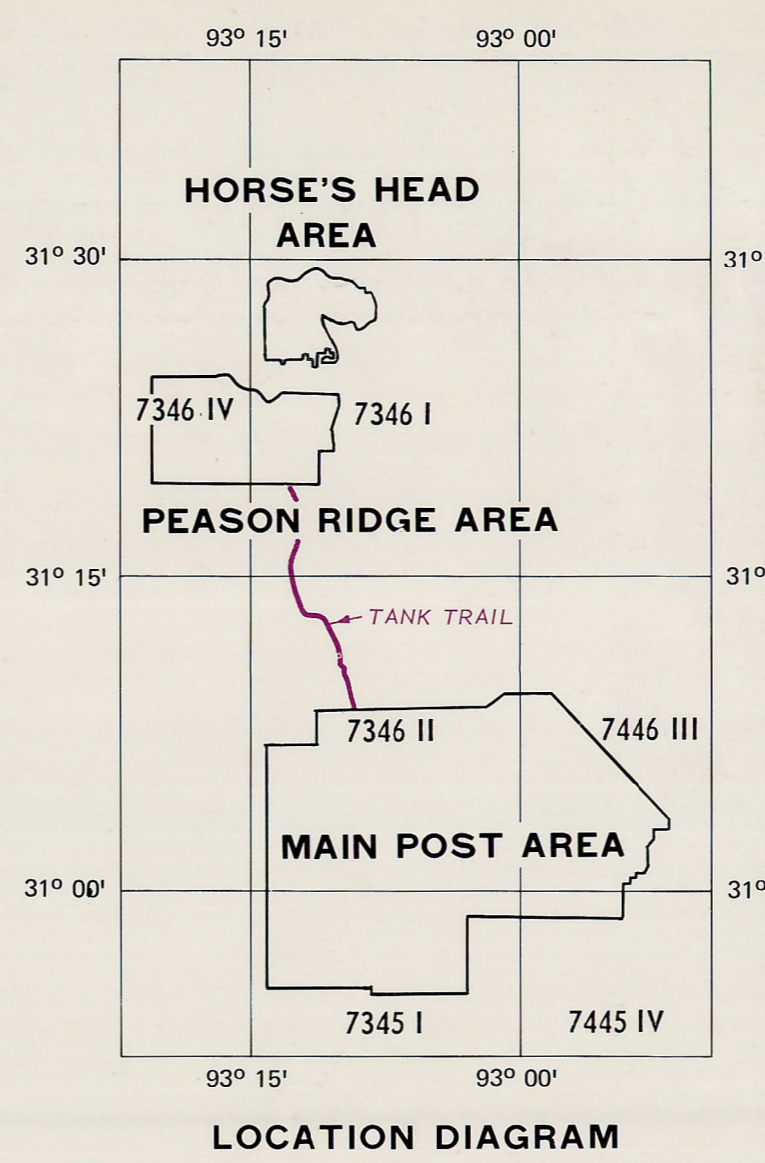
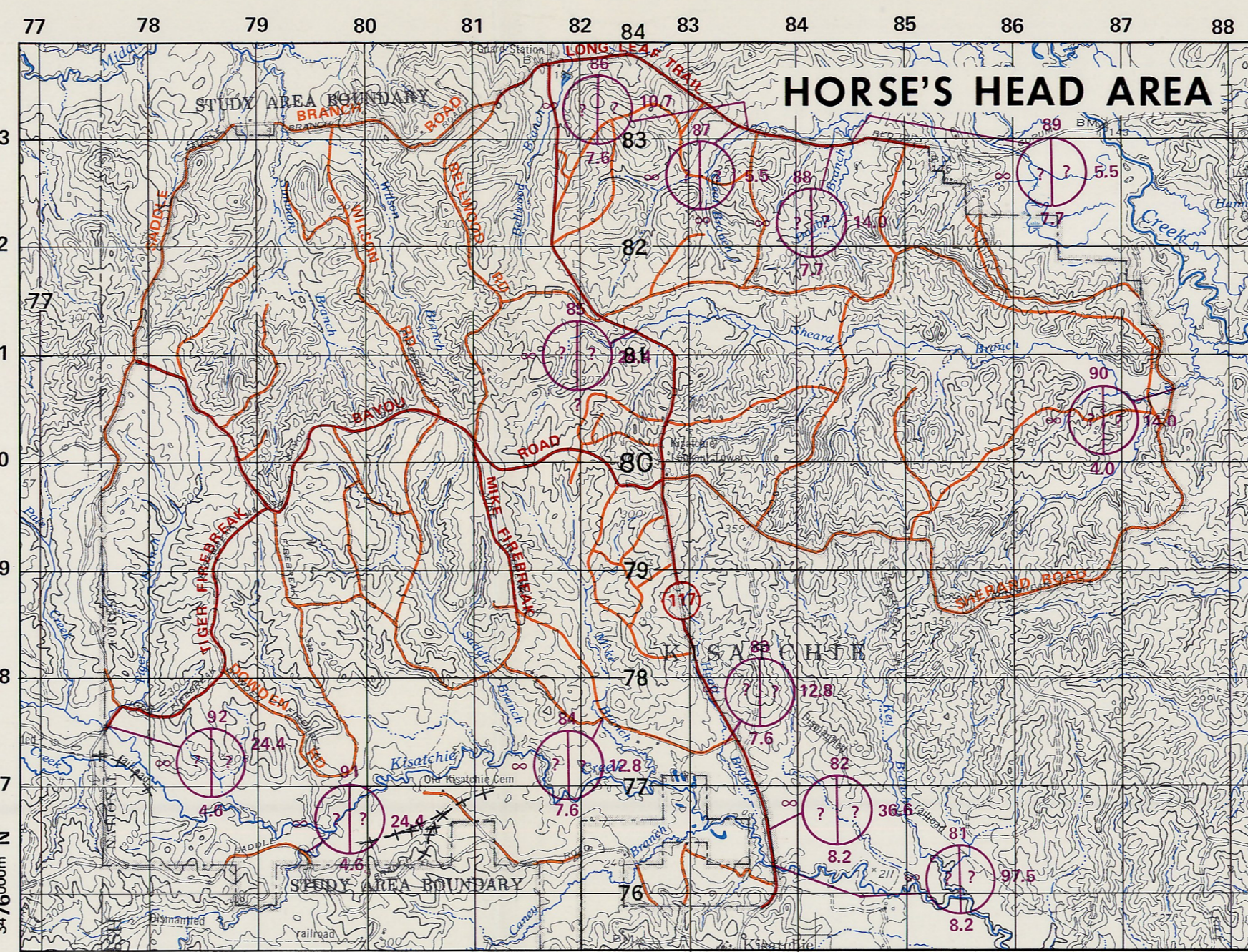
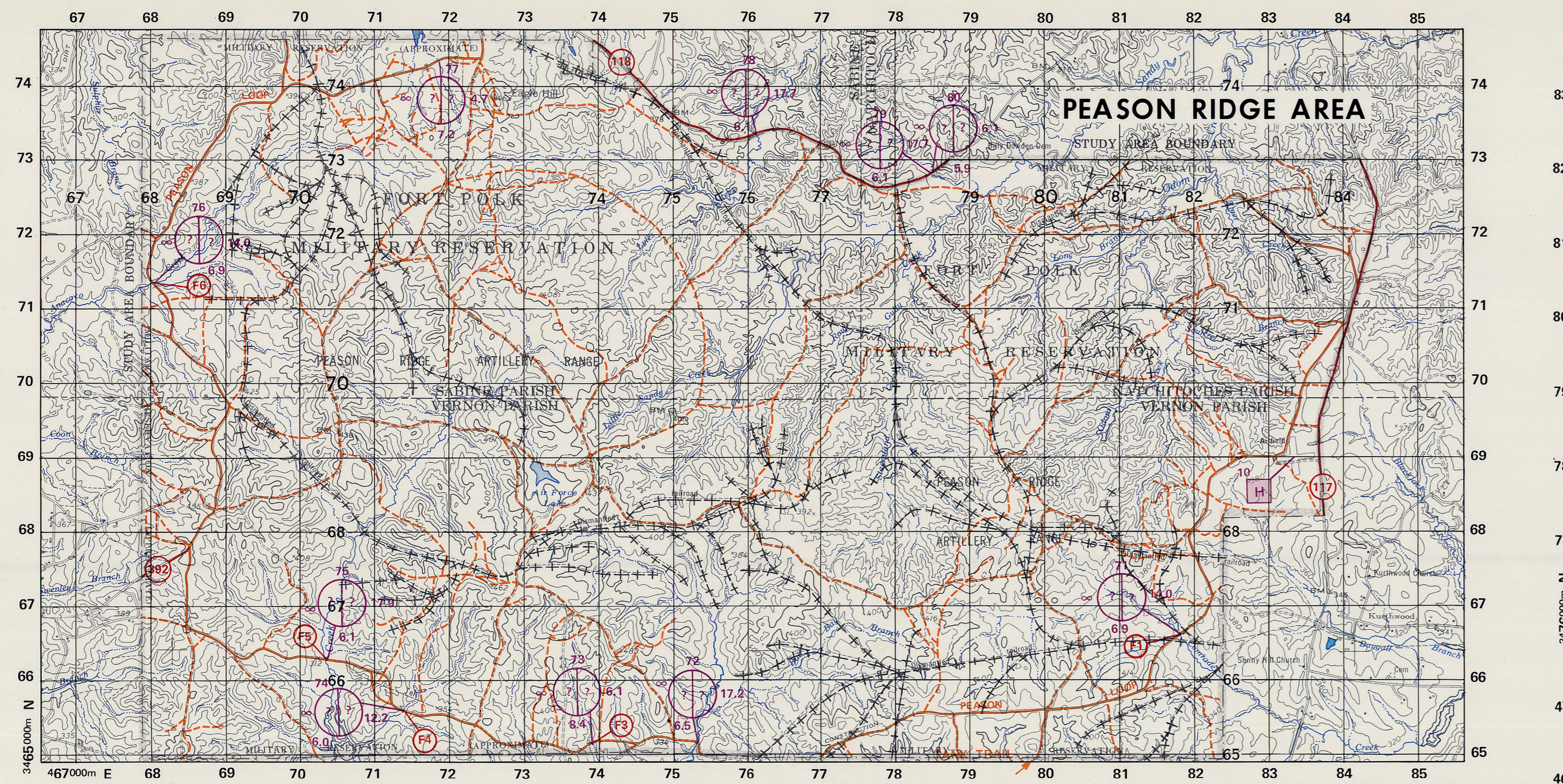
MAP NUMBER AND/OR NAME	LOCATION (GRID REFERENCE)	DIMENSIONS		AZIMUTH	ELEVATION		SURFACE MATERIAL	RESTRAINTS	REMARKS
		m	ft		m	ft			
Main Post Area									
1. Range 8	866311	No data		No data	82.3	270	Natural turf	No data	Open field.
2. Range 34B	950381	No data		No data	91.4	300	Natural turf	No data	Open field.
3. Range 33	957433	No data		No data	115.8	380	Natural turf	No data	Open field.
4. Range 43	114366	No data		No data	79.2	260	Natural turf	No data	Open field.
5. Range 45	008434	No data		No data	73.2	240	Natural turf	No data	Open field.
6. Range 34A	940394	No data		No data	73.2	240	Natural turf	No data	Open field.
7. Range 5	879429	No data		No data	79.2	260	Natural turf	No data	Open field.
8. Fort Polk Army Airfield	819344	No data		No data	100.6	330	Bituminous	No data	
9. Hospital	791348	183 by 91	600 by 300	330° to 150°	97.5	320	Natural turf	Power lines and trees at each end	Open field.
Peason Ridge Area									
10. Peason Ridge airstrip	833690	No data		No data	115.8	380	Natural turf	No data	Abandoned airstrip.

6. DROP ZONES

There are no designated drop zones within the Fort Polk Study Area. However, if air drops are to be made, Honor Field (parade ground) in the Main Post area can be used.

TABLE J6. DROP ZONES

MAP NUMBER	LOCATION (GRID REFERENCE)	DIMENSIONS				AZIMUTH	ELEVATION		SURFACE DESCRIPTION	AIRCRAFT OBSTRUCTIONS	REMARKS			
		LENGTH		WIDTH			m	ft						
		m	ft	m	ft									
1	807324	655.3	2150	329.2	1080	24° to 204°	85.3	280	Grass	Tall trees to south and east could obstruct low-level materiel drops	Hard-surface road to north; loose-surface road to west.			



# FORT POLK, LOUISIANA

(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

## TERRAIN ANALYSIS

### LINE OF COMMUNICATION

- ROADS
- Hard-surface, 2 lanes
  - Loose-surface
  - Unimproved dirt
  - Tank trail
  - State route number

- ROAD BRIDGE DATA  
(All measurements in meters)
- A. Bridge number
  - B. Length
  - C. Roadway width
  - D. Vertical clearance
  - E. One way military load classification
  - F. Two way military load classification
  - ∞ Unlimited vertical clearance

NOTE: For additional road and bridge data, see tables in text.

- F1 Ford (For additional information on fords, see Table B-4, Fords Surface Drainage)

- RAILROADS
- Railroad and identification number, single track
  - Railroad, multitrack
  - Railroad dismantled

- RAILROAD BRIDGE DATA  
(All measurements in meters)
- A. Bridge number
  - B. Vertical clearance
  - C. Horizontal clearance
  - D. Length

- AIRFIELDS
- Airfield
  - Orientation of runway is indicated by the placement of airfield.

- HELICOPTER LANDING ZONES
- Landing Zone

- DROP ZONES
- Drop Zone

- PIPELINES
- Underground pipeline
  - Underground pipeline (multiple)

NOTE: Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, January 1978.

K. URBAN AREAS (CANTONMENT AREAS)

TABLE K1. TROOP BILLETs

TYPE	NUMBER	CAPACITY		CURRENT OCCUPANCY	CONDITION	REMARKS
		m²	ft²			
Temporary (barracks)	492 buildings	234,227	2,521,200	No data on troops in each billet type category	Good	1941 and 1942 construction.
Semipermanent (barracks)	2 buildings	1,249	13,440		Good	1941 construction.
Permanent (barracks complexes)		60,159	647,550		Excellent	New permanent construction is part of the Fort Polk building program; several complexes were under construction.
		Total 16,485 troops	Total 4,149 troops			

TABLE K2. QUARTERS

TYPE	NUMBER	CAPACITY	CURRENT OCCUPANCY	CONDITION	REMARKS
Officer family	6 buildings	14 families	No data	Good	1941 and 1942 construction.
	84 units	84 families	No data	Excellent	New construction; 82 more units planned for FY 1977.
		Total 98 families			
Officer*	60 buildings	27,193 m² (292,701 ft²)	No data	Good to excellent	New and 1941 construction.
Bachelor officer	2 buildings	1,620 officers	1,454 officers	Excellent	150 more units planned for FY 1977.
NCO family	63 buildings	1,416 families	656 families	Excellent	New construction; 570 more units planned for FY 1977.
Chaplain	1 building	80 m² (857 ft²)	No data	Good	1942 construction.
Guest	3 buildings	2,128 m² (22,910 ft²)	No data	Good	1942 and 1943 construction.

\* It was not determined whether these were officer family or bachelor officer quarters.

TABLE K3. UTILITIES

TYPE	CAPACITY OR EQUIPMENT	CURRENT LOAD	REMARKS
Natural gas	15,450-m³/hr (13,095,000-ft³/day) contract maximum*	12,155-m³/hr (10,302,000-ft³/day) contract minimum	Natural gas is supplied by United Gas Pipeline Company from fields in southwest Louisiana and southeast Texas. The gas is piped through 20.3-cm (8-in.) welded steel lines at pressures from 2413 to 3103 kPa (350 to 450 psi). Pressure reducers drop the gas pressure to approximately 483 kPa (70 psi) for transmission to the North and South Fort Polk cantonment areas.  Additional reducers drop the pressure to 55 kPa (8 psi) and 1.7 kPa (4 oz/in.²).  There are 124,914 lin m (409,824 lin ft) of gas mains in use at North Fort Polk and 78,908 lin m (258,885 lin ft) in use at South Fort Polk. All mains are in good condition.
Water	North Fort Polk, 17,000,000 liters/day (4,500,000 gal/day) South Fort Polk, 22,300,000 liters/day (5,900,000 gal/day)	North Fort Polk, 6,000,000 liters/day (1,600,000 gal/day) South Fort Polk, 12,100,000 liters/day (3,200,000 gal/day)	Water is supplied by 14 deep wells; 6 wells are located at North Fort Polk and 8 wells are located at South Fort Polk.  Treatment consists of sodium hexametaphosphate introduction due to high iron content in solution. Chlorine is used to sterilize the water and maintain a chlorine residual of 2 ppm. The water is stored in a 3.8-million-liter (1-million-gallon) tank; another 3.8-million-liter (1-million-gallon) tank was under construction in 1976. In the cantonment areas, static water pressures vary from 179 to 586 kPa (26 to 85 psi).
Sewage treatment	North Fort Polk, 15,900,000 liters/day (4,200,000 gal/day) South Fort Polk, 15,900,000 liters/day (4,200,000 gal/day)	North Fort Polk, 5,300,000 liters/day (1,400,000 gal/day) South Fort Polk, 5,300,000 liters/day (1,400,000 gal/day)	Each trickling filter plant was designed for a population of 20,000. Plans include a 9,100,000-liters/day (2,400,000-gal/day) increase in capacity of the South Fort Polk plant, an improvement in quality of its effluent, and repairs to the North Fort Polk plant.
Communications	3,300 lines	1,936 lines (4,706 phones)	Service is supplied by the U. S. Army Communication Center Detachment. There are adequate reserves for expansion.
Telephone		1 station	Service is supplied by Western Union. There are other stations in surrounding cities.
Telegraph			
Electricity			
North Substation	Two 3,000-kVA, 3-phase, 34,500-2,400/4,160-V transformers and switchgear	211 TJ** (58.5 million kWhr) per year—Main Post area	Louisiana Power and Light Company and Central Louisiana Electric Company supply power to the Main Post area; Valley Electric Company supplies power to the Peason Ridge area. The North Substation distributes power using four main copper feeders. Power for the larger part of South Fort Polk is supplied by two main copper feeders from South Substation 1. South Substation 2 supplies power to the remainder of South Fort Polk through two main aluminum feeders and one main copper feeder.
South Substation 1	Four 1,250-kVA, single-phase, 34,500-2,400/4,160-V transformers and switchgear	0.475 TJ (132 thousand kWhr) per year—Peason Ridge area	
South Substation 2	Two 34,400/12,000-kVA, 3-phase, 34,500-7,960/13,800-V transformers and switchgear		There are several emergency power plants at critical locations for use in emergency situations.  South Substation 2 has provisions for adding another 34,400/12,000-kVA, 3-phase transformer when power demand makes it necessary.

\* No data were available on maximum flow and maximum allowable pressure.

\*\* Terajoules.

TABLE K4. RECREATION FACILITIES

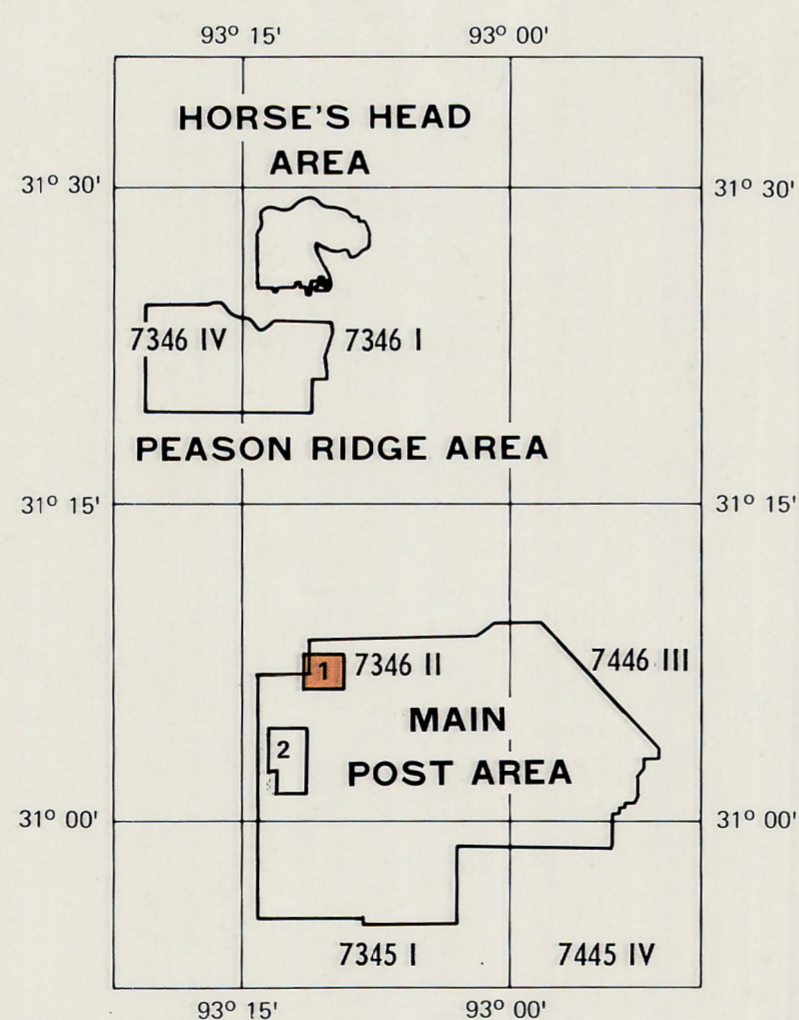
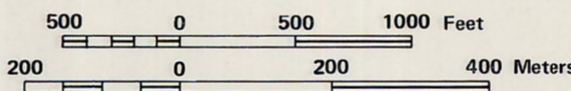
TYPE	NUMBER	CAPACITY OR AREA	REMARKS
Swimming pools	2	3,517 m² (37,856 ft²)	Another pool under construction in 1976.
Tennis courts	13		
Youth activity center	1	790 m² (8,500 ft²)	
Golf clubhouse	1	1,440 m² (15,500 ft²)	
Golf course	1	18 holes, 75 ha (185 acres)	
Skeet launches	3	13 m² (144 ft²)	Part of skeet ranges.
Recreation buildings	87	13,939 m² (150,040 ft²)	
Recreation centers	3	5,183 m² (55,792 ft²)	
Entertainment centers	5	1,448 m² (15,590 ft²)	
Theaters	2	1,746 seats, 3,113 m² (33,511 ft²)	1,000-seat theater to be completed in 1976.
Bowling centers	2	1,549 m² (16,672 ft²)	24-lane bowling center to be completed in 1976.
Field house	1	2,635 m² (28,361 ft²)	
Gymnasiums	2	681 m² (7,326 ft²)	Physical fitness center scheduled for construction in FY 1979.
Athletic fields	20	40 ha (100 acres)	8,333-seat athletic field planned for FY 1978.
Picnic areas, campsites, playgrounds, paths, and trails		30 ha (75 acres)	

TABLE K5. SCHOOLS AND HOSPITALS

TYPE	CAPACITY	REMARKS
Schools		None on-post
Hospital	200 beds	This facility was constructed in 1941-42 and had an expansion capability up to 1,500 beds. A new 460-bed hospital is slated for completion in FY 1978. The new hospital will include a 28-chair dental clinic. Seventy-nine chairs, including seven on a standby basis, are already available on-post. A helipad is available at the hospital.

URBAN AREAS (CANTONMENT AREAS)

NORTH FORT POLK



LOCATION DIAGRAM  
1. North Fort Polk  
2. South Fort Polk

AREA FEATURES

- Officer Quarters
- Chaplain Quarters
- Guest Quarters
- Troop Barracks
- Medical or Dental Facilities
- Recreation Facility

SITE FEATURES

- Telephone Exchange
- Post Office
- Fire Station
- Branch Officers Open Mess
- Power Substation
- Television Antenna Tower
- Museum
- Education Center
- Service Station

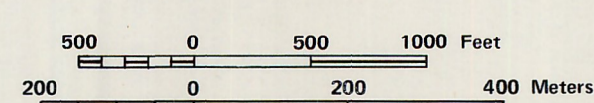
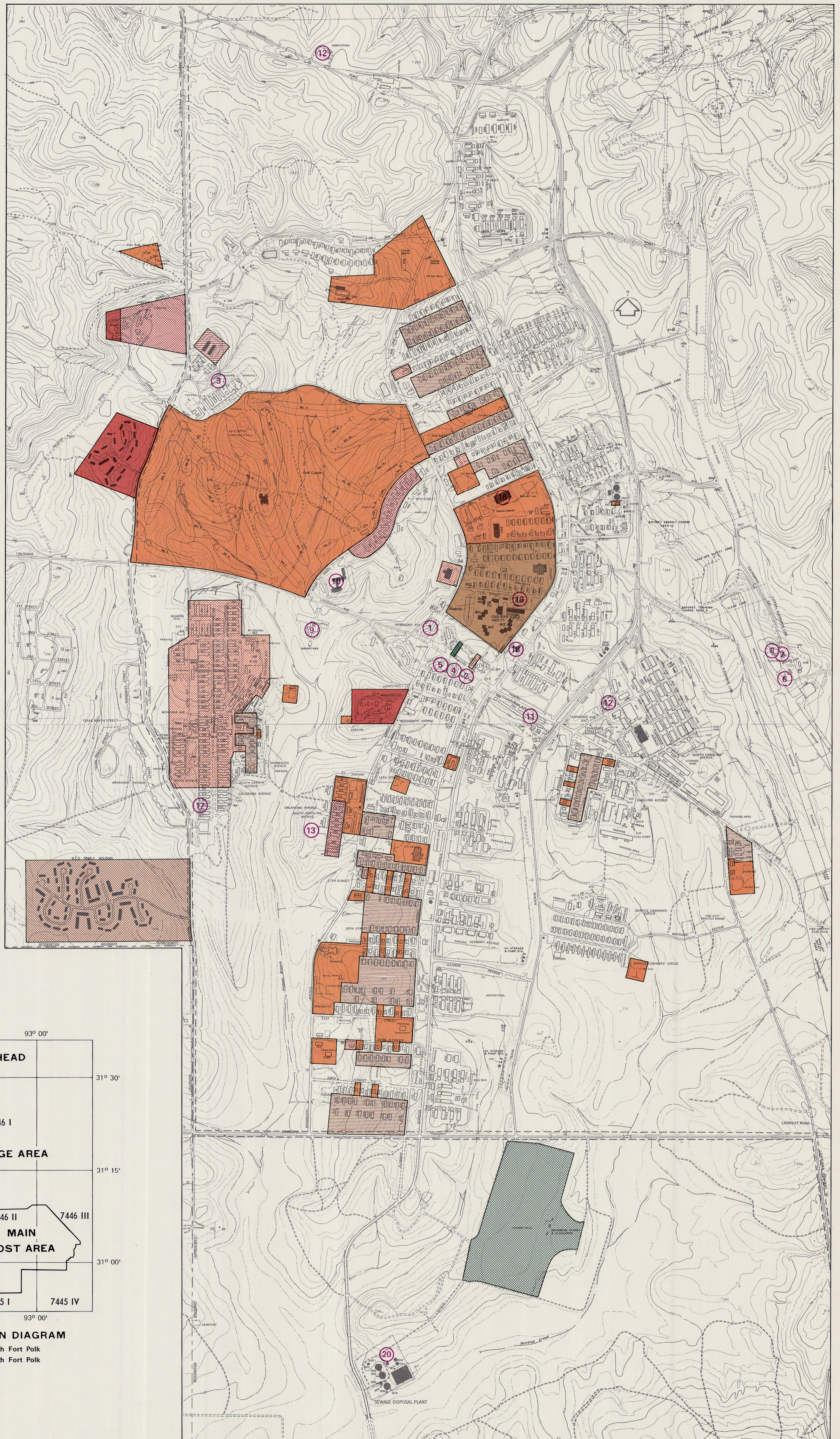
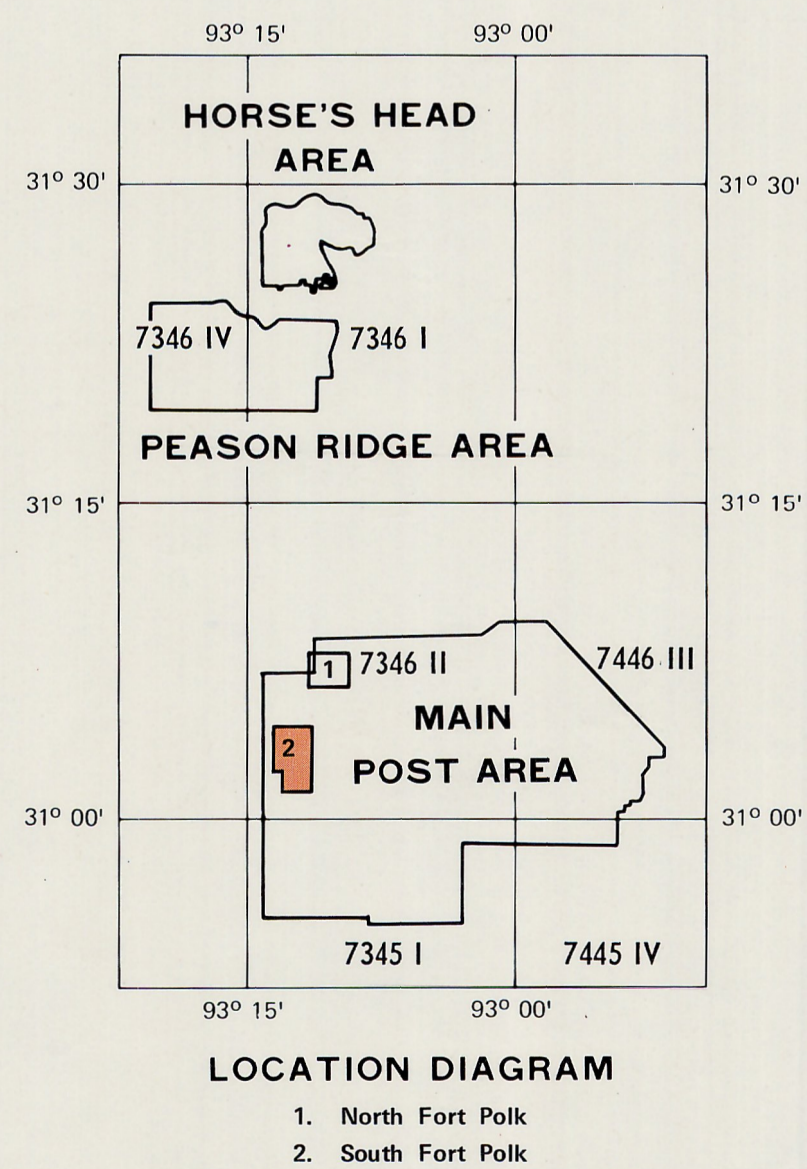
Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia. January 1978.

# URBAN AREAS (CANTONMENT AREAS)

## SOUTH FORT POLK

- AREA FEATURES**
- Officer Family Quarters
  - Officer Quarters
  - Bachelor Officer Quarters
  - Noncommissioned Officer Family Quarters
  - Enlisted Quarters
  - Guest Quarters
  - Troop Barracks
  - Medical or Dental Facilities
  - Recreation Facility
  - Parade Field

- SITE FEATURES**
- Post Headquarters
  - Post Library
  - Mars Station
  - Telephone Exchange
  - Post Office
  - Control Tower
  - Fire Station
  - Operations Building
  - Officers Open Mess
  - Post Chapel
  - Directorate of Facilities Engineering
  - Power Substation
  - Television Antenna Tower
  - Post Exchange
  - Commissary
  - Service Station
  - Heating Plant
  - Sewage Treatment Plant



Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia. January 1978.

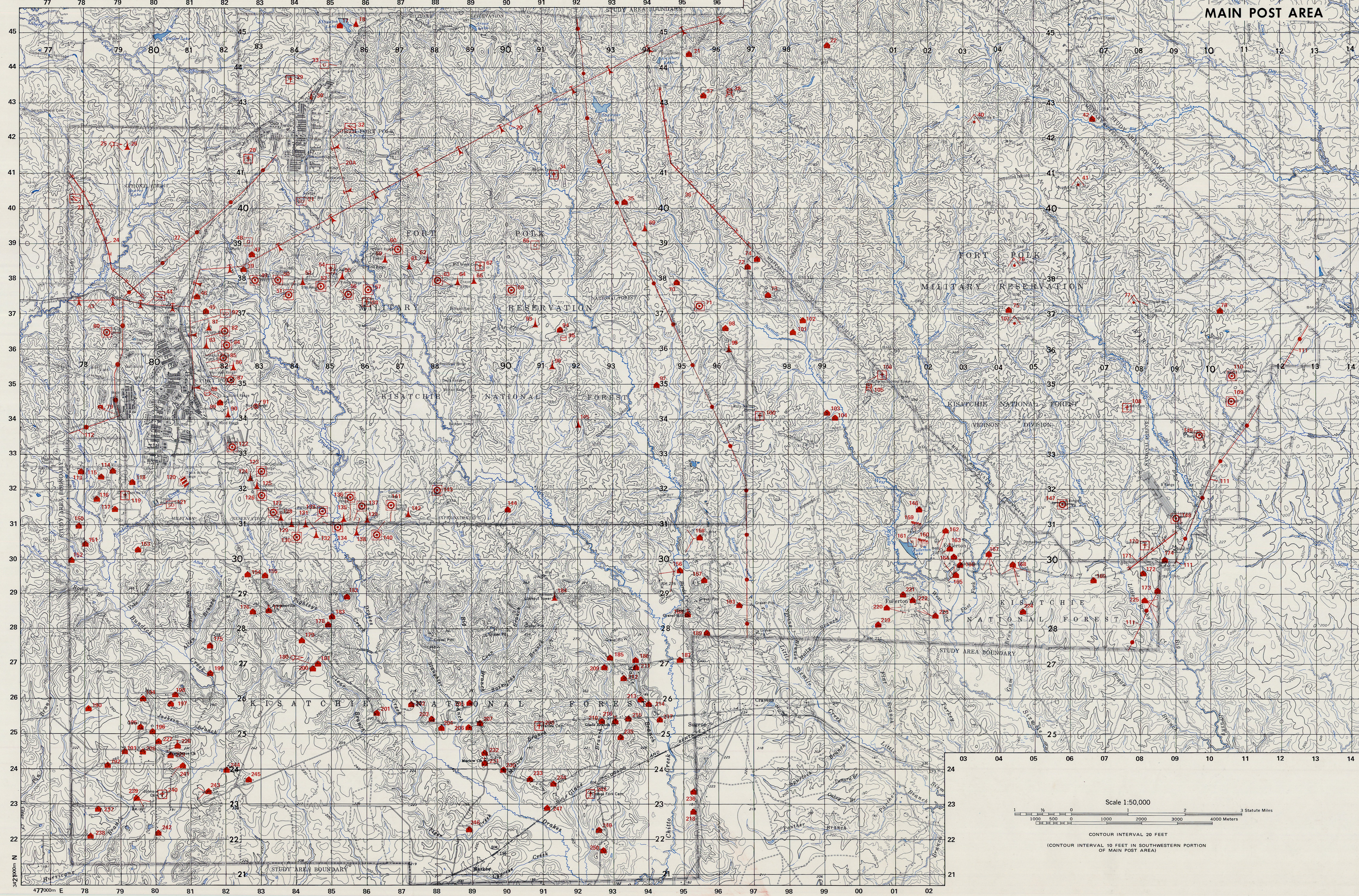
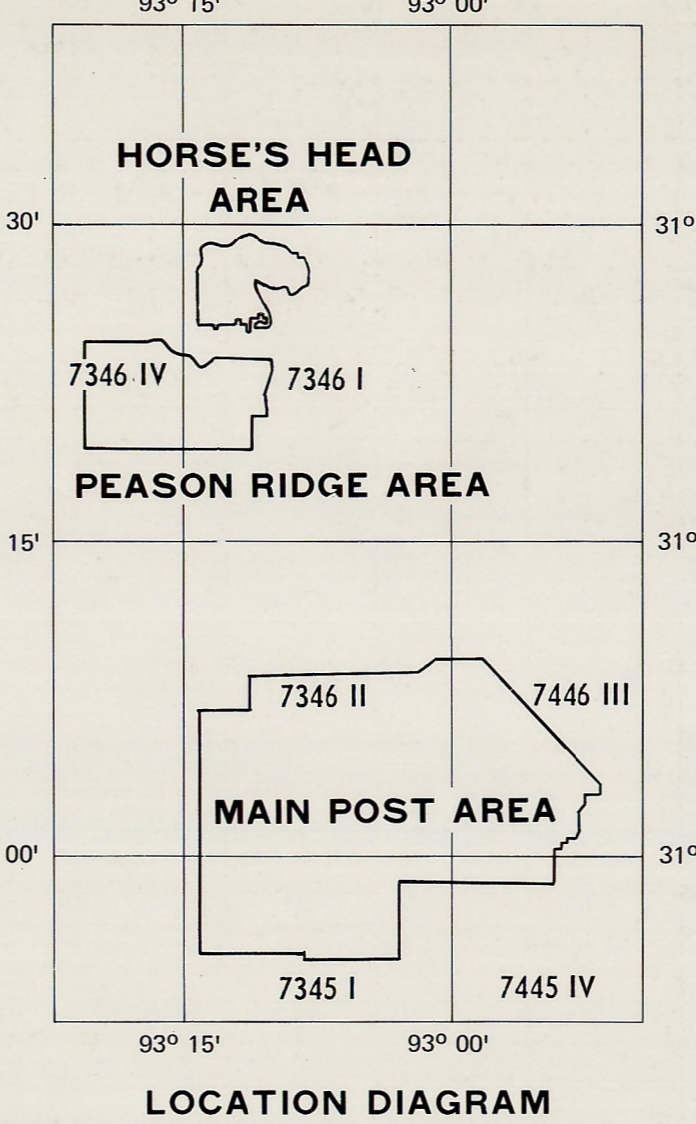
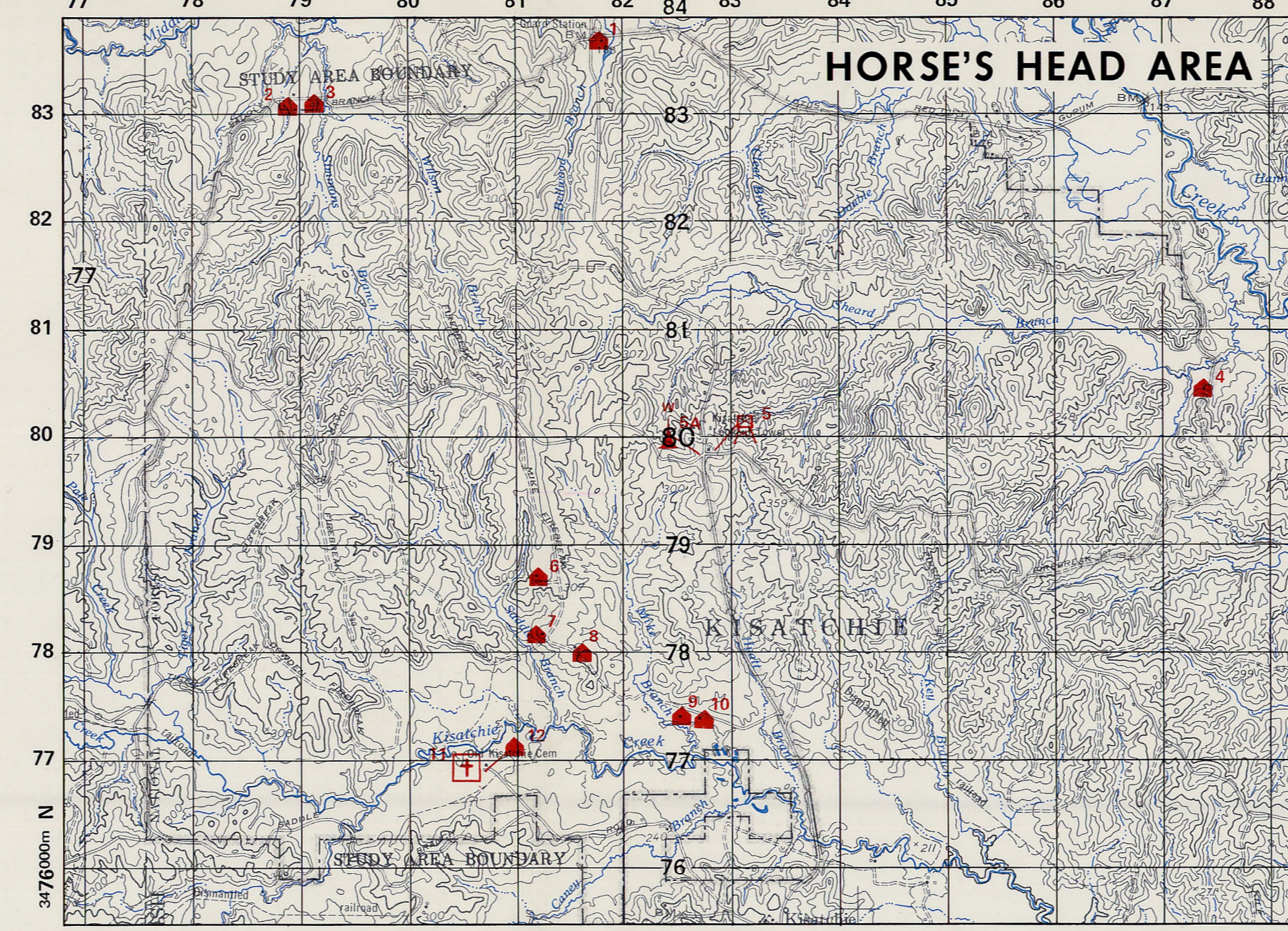
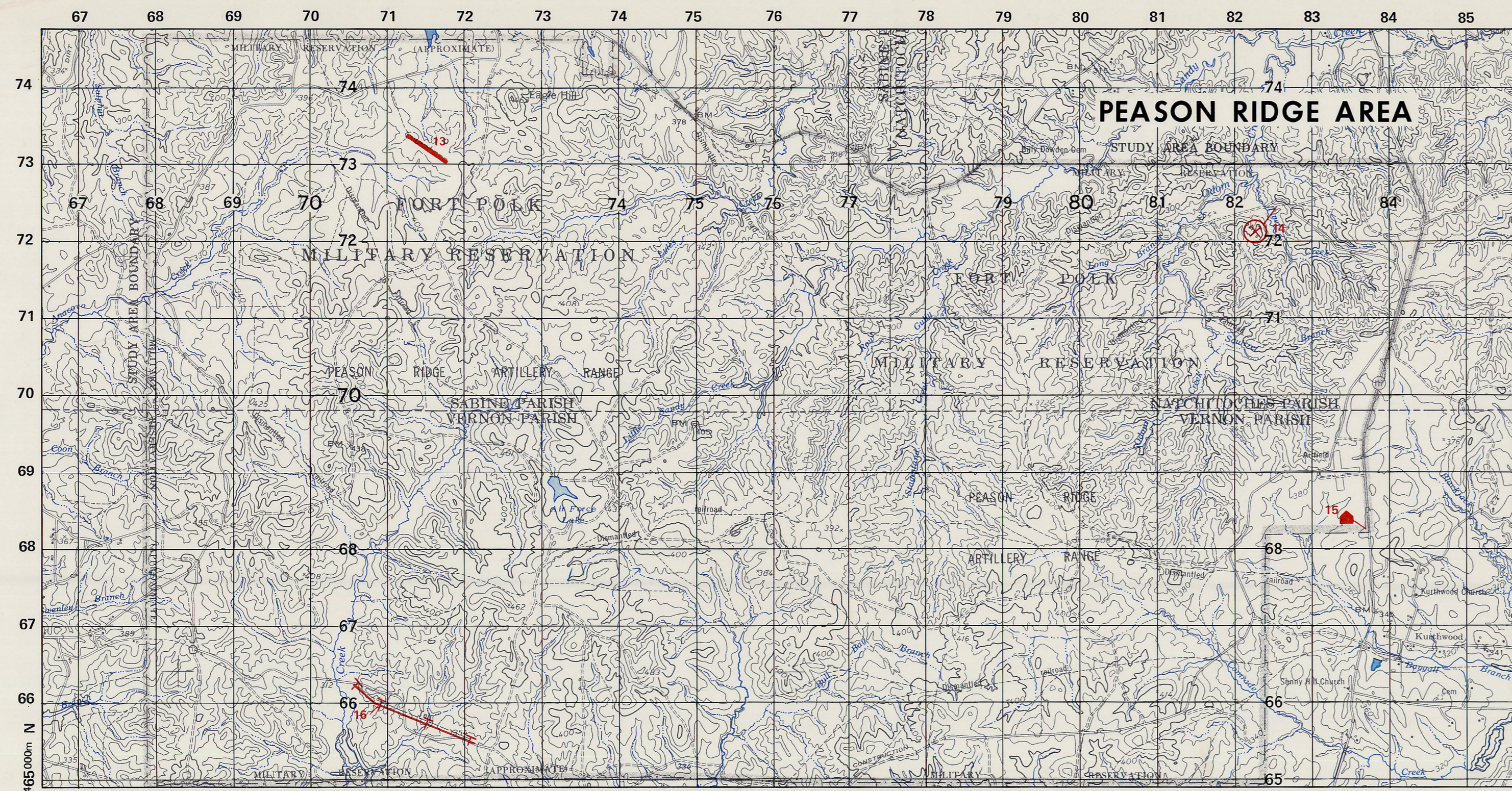
L. NON-URBAN CULTURE FEATURES

In the Fort Polk Study Area, there are over 200 man-made features outside the cantonment areas which could affect military training or operations either positively or negatively. Most of the features depicted on the accompanying map and described below consist of buildings, ranges, and towers which existed as of June 1977.

TABLE L1. NON-URBAN CULTURE FEATURES

MAP NUMBER	GRID REFER- ENCE	DESCRIPTION	MAP NUMBER	GRID REFER- ENCE	DESCRIPTION	MAP NUMBER	GRID REFER- ENCE	DESCRIPTION	MAP NUMBER	GRID REFER- ENCE	DESCRIPTION
1	818837	Building	64	886379	Tower, height 5 m (16 ft)	135	853311	Tower, height 5 m (16 ft)	202	873258	2 Buildings
2	789831	Building	65	908390	Disposal Site, Rubble	136	855311	Range (Taylor) and Tower, height 5 m (16 ft)	203	879254	5 Buildings
3	791831	Building	66	891379	Tower, height 7 m (24 ft)				204	881252	Building
4	874805	2 Buildings	67	892383	Cemetery (Mill Creek)	137	857312	Range (Sherman)	205	889259	Building
5	828799	Lookout Tower (Kisatchie), height 37 m (120 ft); and 2 Buildings	68	901377	Range and 2 Towers, heights 5 m (16 ft) and 7 m (24 ft)	138	858312	Tower, height 5 m (16 ft)	206	889252	Building
5A	827798	Weather Station (Kisatchie)	69	939394	Tower, height 5 m (16 ft)	139	860312	Tower, height 5 m (16 ft)	207	892253	5 Buildings
6	812787	Building	70	948379	Building	140	865311	Range (Grant)	208	909252	Cemetery (Marlow)
7	812782	2 Buildings	71	955372	Range and Tower, height 5 m (16 ft)	141	867311	Range (Slocum)	209	927269	Building
8	816780	2 Buildings	72	969383	Building	142	872313	Tower, height 5 m (16 ft)	210	926254	5 Buildings
9	825774	Building	73	974376	Building	143	880320	Range (Burnside)	211	937268	3 Buildings
10	827774	Building	74	971386	2 Buildings	144	900314	Building	212	933266	4 Buildings
11	805770	Cemetery (Old Kisatchie)	75	042371	Building	145	920339	Tower, height 5 m (16 ft)	213	938260	Building
12	807769	2 Buildings	76	044384	Dugout	146	017314	3 Buildings	214	940259	2 Buildings
13	714732	Abandoned Airstrip	77	082372	Dugout	147	058316	Range	215	934254	8 Buildings
14	825725	Abandoned Sandstone Quarry	78	103371	Building	148	090312	Range and Lookout Tower, height 7 m (24 ft)	216	931254	Church (Glade Branch)
15	836683	7 Buildings; Water Storage Tank, height 31 m (102 ft); and Oxidation Pond	79	789342	Trailer Park	149	097336	Range and Lookout Tower, height 7 m (24 ft)	217	943255	6 Buildings
16	706662 to 721655	Telephone Line	80	790365	Range, Skeet	150	778310	4 Buildings	218	953228	3 Buildings
17	853452	Building	81	815366	Tower, height 5 m (16 ft)	151	780304	6 Buildings	219	005281	Building
18	857453	Campgrounds with 7 Buildings	82	814364	Range (Forsyth)	152	776300	3 Buildings	220	(3)013285 (2)012287	5 Buildings
19	920454 to 968278	Underground Pipeline (Tennessee Gas Transmission Co.)	83	814361	Tower, height 5 m (16 ft)	153	795303	Building	221	014290	3 Buildings
20	963455 to 812346	Power Transmission Line (34.5 kV, Louisiana Power and Light Co.)	84	814358	Range (Johnston)	154	827296	8 Buildings	222	015288	4 Buildings
20A	850420 to 855401	Power Transmission Line (34.5 kV, Louisiana Power and Light Co.)	85	814356	Range (Patch)	155	831295	Building	223	(4)018286 (2)016286	6 Buildings
21	952444	Building	86	815355	Tower, height 5 m (16 ft)	156	(2)946299 (3)943296 (1)946291	6 Buildings	224	047285	2 Buildings
22	991446	3 Buildings	87	816353	Range (Harrison)	157	956294	2 Buildings	225	084282 084287 084289	3 Buildings
23	775408	Power Substation	88	818347	3 Fuel Storage Tanks, 34,000 liters (9,000 gal) each	158	(2)951309 (2)951302	4 Buildings	226	796245	7 Buildings
24	775410 to 796375	Telephone Line	89	818346	3 Buildings and Beacon, height 17 m (55 ft)	159	016308	Ruins	227	801248	Building
25	791417	North Final Approach Fan Marker	90	821342	Tower, height and use unknown	160	018305	Ruins	228	803246	Church (Providence) and Cemetery
26	791418	VOR Tower, height 21 m (70 ft)	91	825343	Moving Target	161	015305	Recreation Area (Fullerton Lake)	229	804244	Building
27	835415 to 791375	Underground Pipeline (United Gas Pipeline Co., 1380 kPa (200 psi))	92	811368	Disposal Site, Rubble	162	(4)022305 (8)023302	12 Buildings	230	898240	5 Buildings
28	826415	Cemetery	93	908368	Tower (Roosevelt Range), height 6 m (19 ft)	163	024302	Church	231	894242	Church (Marlow)
29	839436	Cemetery	94	915365	Building (Louisiana Wildlife and Fish Commission)	164	028301	5 Buildings	232	894244	2 Buildings
30	844433	North TV Tower, height 61 m (200 ft)	95	916363	Tank, height and use unknown	165	(2)024299 (3)027298 (4)025294	9 Buildings	233	906237	3 Buildings
31	841402	Sewage Disposal Plant	96	913356	Tower (Smith Range), height 5 m (16 ft)	166	028298	Church (Oak Grove)	234	912236	3 Buildings
32	850420	Power Substation (Louisiana Power and Light Co.)	97	942350	Building	167	(2)035297 (2)038295 (2)039297	6 Buildings	235	932249	Building
33	852441	Gas Chamber	98	962366	Building and Tower, height and use unknown	168	(1)040296 (3)045295 (2)046293 (1)049297	7 Buildings	236	953234	2 Buildings
34	913410	Cemetery (Watson)	99	963360	Tower, height and use unknown	169	067294	Building	237	(2)783229 (2)788229	4 Buildings
35	933402	2 Buildings and Tower, height 5 m (16 ft) *	100	972341	Cemetery (Holly Springs)	170	082304	Cemetery (Sermon)	238	781221	2 Buildings
36	944435 to 970389	Telephone Line	101	981365	2 Buildings	171	076297 to 090308	Telephone Line	239	(2)797229 (2)799231	4 Buildings
37	956432	1 Building and Tower, height 5 m (16 ft)	102	983368	2 Buildings	172	081296	4 Buildings	240	802233	Cemetery (Johnson) and Church
38	963433	Observation Post	103	991342	2 Buildings	173	085291	2 Buildings	241	(2)804240 (2)805238	4 Buildings
39	825383	Building	104	993341	2 Buildings	174	087300	Building	242	801222	2 Buildings
40	033425	Dugout	105	002350	Lookout Tower (Fullerton), height unknown	175	816275	Building	243	(2)812232 (1)812235	3 Buildings
41	063407	Dugout	106	002351	Cemetery	176	827286	3 Buildings	244	820240	3 Buildings
42	067425	4 Buildings	107	045368	Dugout	177	832285	Church (Johnsonville)	245	827237	2 Buildings
43	775374 to 810372	Power Transmission Line (34.5 kV, Central Louisiana Electric Co.)	108	076343	Cemetery (Smith)	178	849281	Building	246	889223	Building
44	798373	Power Substation 2 (Louisiana Power and Light Co.)	109	106345	Range	179	841277	Building	247	911229	Building
45	814371	3 Buildings	110	106353	Range and Tower, height 7 m (24 ft)	180	844271	South Final Approach Fan Marker	248	923233	Cemetery (Drakes Fork)
46	812375	Building	111	127367 to 076274	Underground Pipeline (Trunkline Gas Co.)	181	846270	Building	249	926223	Building
47	827387	Building	112	775336 to 791375	Underground Pipeline (United Gas Pipeline Co., 2760 kPa (400 psi))	182	854289	Building	250	927217	2 Buildings
48	827391	Sanitary Landfill	113	779326	6 Buildings	183	850283	Building			
49	828380	Range (Patton)	114	788326	6 Buildings	184	913289	Lookout Tower (Vernon), height 27 m (90 ft); and Building			
50	835380	Range (Sheridan)	115	784324	5 Buildings	185	929272	Building			
51	840380	Range (Walker)	116	783317	4 Buildings	186	937271	3 Buildings			
52	841379	2 Towers, heights 5 m (16 ft)	117	788314	7 Buildings	187	949271	Building			
53	847378	Range (Still)	118	793322	2 Buildings	188	951285	Church (Gravel Hill) and Cemetery			
54	850378	Cemetery (Zion Hill)	119	792318	Cemetery	189	957279	Building			
55	851378	Tower, height 5 m (16 ft)	120	807323	Bleachers, Parade Field	190	781257	Building			
56	852377	Range (Young)	121	800316	Sewage Disposal Plant	191	791245	Building			
57	859382	Range (Garfield)	122	822333	Range (Lee) and 7 Buildings	192	787241	Building			
58	860374	Cemetery	123	830325	Range (McClelland)	193	966287	2 Buildings			
59	865386	Tower, height 5 m (16 ft)	124	827324	Tower, height 5 m (16 ft)	194	797261	2 Buildings			
60	865388	Range (Howard)	125	829321	Tower, height 5 m (16 ft)	195	795252	Building			
61	872384	2 Towers, heights 5 m (16 ft) and 7 m (24 ft)	126	830319	Range (Jackson) and Tower, height 5 m (16 ft)	196	799251	Building			
62	876382	Range and Tower, height 5 m (16 ft)	127	834314	Range (Kelly)	197	804259	Building			
63	884378	Range (Thayer)	128	835312	Tower, height 5 m (16 ft)	198	806262	2 Buildings			
			129	839311	Tower, height 5 m (16 ft)	199	816267	Building			
			130	841311	Range (Pershing)	200	845269	Building			
			131	842311	Tower, height 5 m (16 ft)	201	862256	Building			
			132	844311	Tower, height 5 m (16 ft)						
			133	845311	Range (Pershing)						
			134	847311	Range and Tower, height 5 m (16 ft)						

\* Most of the range towers are constructed of wood and are mounted on skids for portability. Towers in the proximity of a range are generally associated with that range.



# FORT POLK, LOUISIANA

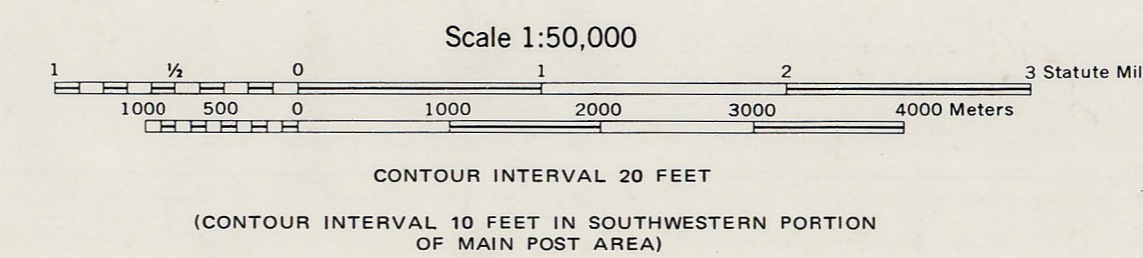
(INCLUDING PEASON RIDGE AND  
FOREST SERVICE LANDS UNDER PERMIT)

## TERRAIN ANALYSIS

### NON-URBAN CULTURE FEATURES

- |  |                            |  |                       |
|--|----------------------------|--|-----------------------|
|  | Building(s)                |  | TV Tower              |
|  | Tower                      |  | Sewage Disposal Plant |
|  | Weather Station            |  | Gas Chamber           |
|  | Church                     |  | Observation Post      |
|  | Cemetery                   |  | Dugout                |
|  | Abandoned Airstrip         |  | Disposal Site         |
|  | Abandoned Sandstone Quarry |  | Range                 |
|  | Camp Grounds               |  | Trailer Park          |
|  | Underground Pipeline       |  | Fuel Storage Tanks    |
|  | Power Line                 |  | Moving Target         |
|  | Electric Power Substation  |  | Bleachers             |
|  | Telephone Line             |  | Ruins                 |
|  | Fan Marker                 |  | Recreation Area       |

Note: Where used, leaders point to exact locations.



NOTE: Refer to Orientation Map, page 3, for boundary information detail.

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia, January 1978.

III. OFF-POST FEATURES

A. AIRFIELDS

There is one airfield, England Air Force Base, within an 80-km (50-mile) radius of the Fort Polk cantonment areas that is capable of supporting a C-130 Hercules aircraft with a gross load of 56,245 kg (124,000 lb). The airfield is located 72 to 80 km (45 to 50 miles) northeast of the cantonment areas near the cities of Alexandria and Pineville, Louisiana, and is adjacent to the Red River. Specific data on the airfield are presented in Table A1.

TABLE A1. AIRFIELDS

NAME, LOCATION, TYPE, AND CLASSIFICATION	ELEVATION AND STATUS	RUNWAY DESCRIPTION	TAXIWAY, PARKING APRON, AND HARDSTAND AREA DESCRIPTION	BUILDING DESCRIPTION	POL FACILITIES	NAVIGATION AIDS	REMARKS																																																											
<u>Name:</u> England Air Force Base <u>Location:</u> 31°20'N, 92°33'W <u>Type:</u> Airfield <u>Classification:</u> Air Force	<u>Elevation:</u> 27.1 m (89 ft) <u>Status:</u> Operational	<u>Longest runway:</u> Dimensions: 2,850 by 45.7 m (9,350 by 150 ft) Azimuth: 144° to 324° Weight bearing capacity: * S160 (72,575 kg), T200 (90,718 kg), ST175 (79,379 kg), TT460 (208,652 kg), TDT800 (362,874 kg) Surface material: Portland cement concrete Surface condition: Excellent <u>Other runway:</u> Dimensions: 2,134 by 45.7 m (7,000 by 150 ft) Azimuth: 180° to 360° Weight bearing capacity: Not available, but limited to 58,967 kg (130,000 lb) Surface material: Asphaltic concrete overlay between stations 12+00 and 32+00; portland cement concrete for remainder Surface condition: Fair	<u>Taxiway dimensions:</u> <table><tr><th rowspan="2">DESIG-NATION</th><th colspan="2">APPROXIMATE LENGTH</th><th colspan="2">WIDTH</th></tr><tr><th>m</th><th>ft</th><th>m</th><th>ft</th></tr><tr><td>A</td><td>1390</td><td>4560</td><td>23</td><td>75</td></tr><tr><td>B</td><td>1341</td><td>4400</td><td>23</td><td>75</td></tr><tr><td>C</td><td>917</td><td>3008</td><td>23</td><td>75</td></tr><tr><td>C</td><td>107</td><td>350</td><td>8</td><td>25</td></tr><tr><td>D</td><td>76</td><td>250</td><td>23</td><td>75</td></tr><tr><td>E</td><td>122</td><td>400</td><td>23</td><td>75</td></tr><tr><td>F</td><td>1000</td><td>3280</td><td>23</td><td>75</td></tr><tr><td>G</td><td>1067</td><td>3500</td><td>23</td><td>75</td></tr><tr><td>I</td><td>264</td><td>866</td><td>30</td><td>100</td></tr><tr><td>J</td><td>1887</td><td>6191</td><td>23</td><td>75</td></tr></table> <u>Taxiway surface materials:</u> Asphaltic concrete and portland cement concrete <u>Parking apron and hardstand area total area:</u> Approximately 392,297 m² (4,222,650 ft²) <u>Parking apron and hardstand area surface material:</u> Portland cement concrete	DESIG-NATION	APPROXIMATE LENGTH		WIDTH		m	ft	m	ft	A	1390	4560	23	75	B	1341	4400	23	75	C	917	3008	23	75	C	107	350	8	25	D	76	250	23	75	E	122	400	23	75	F	1000	3280	23	75	G	1067	3500	23	75	I	264	866	30	100	J	1887	6191	23	75	<u>Hangars:</u> 2 Floor space: 3,817 m² (41,087 ft²) and 7,389 m² (79,537 ft²) Construction material: Steel, masonry, and concrete <u>Maintenance facilities:</u> 4 Medium aircraft: 3 Floor space: 2 at 1,021 m² (10,985 ft²), 1 at 1,024 m² (11,021 ft²) Construction material: Steel and concrete Small aircraft: 1 Floor space: 3,175 m² (34,176 ft²) Construction material: Steel and concrete <u>Weather and flight operations and tower:</u> Height: 30.1 m (98.7 ft) excluding antenna mast Floor space: 832 m² (8,958 ft²) Construction material: Masonry block and concrete <u>Radar approach control center:</u> Floor space: 561 m² (6,034 ft²) Construction material: Masonry and concrete	<u>Fuel types:</u> 115/145 grade and JP4 <u>Oil types:</u> Reciprocating engine oil 1100 (dispersant), jet engine oil 1010, and synthetic base turbine engine oil	<u>Communication and navigation:</u> VHF/UHF/direction finder; VOR (VHF omnidirectional range) and TACAN (Tactical Air Navigation) UHF pulse-type omnirange and distance measuring equipment (DME); weather broadcast combination VOR and TACAN; nondirectional radio beacon; control tower <u>Lighting:</u> High-intensity approach and runway lights, sequenced flashing lights, visual approach slope indicator systems	Secondary runway is not lighted and is restricted to 60,328-kg (133,000-lb) gross loads.  A restricted flying area extends from south of the field to west-northwest of the field.
DESIG-NATION	APPROXIMATE LENGTH		WIDTH																																																															
	m	ft	m	ft																																																														
A	1390	4560	23	75																																																														
B	1341	4400	23	75																																																														
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C	107	350	8	25																																																														
D	76	250	23	75																																																														
E	122	400	23	75																																																														
F	1000	3280	23	75																																																														
G	1067	3500	23	75																																																														
I	264	866	30	100																																																														
J	1887	6191	23	75																																																														

\* Runway weight bearing capacity (gross weight of aircraft), in thousands of pounds, is shown by the three digits following the landing gear type designation. "S" designates a single-wheel type landing gear, such as that of a C-47 or F-100; "T" designates a twin-wheel type landing gear, such as that of a C-9A; "ST" designates a single-tandem type landing gear such as that of a C-130; "TT" designates a twin-tandem type (including quadricycle) landing gear, such as that of a B-52 or C-135; and "TDT" designates a twin-delta-tandem type landing gear such as that of a C-5. Thus, the first entry here, "S160," denotes that this runway will sustain operations of an aircraft having a single-wheel type landing gear and a gross weight of 160,000 lb. The runway weight bearing capacity is also shown here in metric (SI) units. The capacity given is for unlimited operations of the specified aircraft type. Operations of aircraft having gross weights higher than the stated capacity require prior permission from the aerodrome controlling authority.

B. URBAN AREAS

There are 11 urban areas with populations of 2,500 or more within an 80-km (50-mile) radius of the Fort Polk cantonment areas, all within the State of Louisiana. The range in population is from 2,520 for Kinder to 50,670 for Alexandria. There are six urban areas north of the cantonment areas and five to the south, or seven urban areas to the east and four to the west.

Table B1 presents data on the urban areas in terms of population, housing, educational, medical, and recreational facilities, and public utilities. Complete data were not available in the areas of housing, educational facility capacities, and specific recreation facilities by city. Where data were lacking or where future plans are uncertain, the term "No data" is shown. Current housing data were difficult to obtain; however, 1970 census data were available in most cases. Schools were classified according to the highest grade taught; for example, a school with grades 7 to 12 was classified as a secondary school and a school with grades kindergarten to 9 was classified as a junior high school. City recreational facility data were not directly available; however, parish data were used to indirectly determine the desired data.

The Central Louisiana Electric Company (CLECO) provides electric power to most of the urban areas. It also provides water and natural gas service to some of the areas. Each area provides its own sewage treatment facility. A list of urban areas and suppliers of utilities (except sewage) is as follows:

URBAN AREA	ELECTRIC POWER SUPPLIER	WATER SUPPLIER	NATURAL GAS SUPPLIER
Alexandria	City	City	Louisiana Intrastate Gas Co.
Natchitoches	City and CLECO	City	CLECO
Pineville	CLECO	City	CLECO
Leesville	CLECO	CLECO	ENTEX
DeRidder	CLECO	City	ENTEX
Oakdale	CLECO	City	ENTEX
England AFB	CLECO	Alexandria	Alexandria
DeQuincy	CLECO	CLECO	United Gas Pipeline Co.
Mamou	CLECO	City	Continental Gas and Texas Gas
Many	CLECO	City	CLECO
Kinder	CLECO	City	United Gas Pipeline Co.

TABLE B1. URBAN AREAS

NAME AND LOCATION	POPULATION	HOUSING AVAILABILITY	EDUCATIONAL FACILITIES	MEDICAL FACILITIES	RECREATION FACILITIES	PUBLIC UTILITIES	REMARKS
<u>Name:</u> Alexandria <u>Location:</u> 31°18'N, 92°28'W; Rapides Parish, Louisiana	<u>Census 1970:</u> 41,811 <u>Estimated 1976:</u> 50,670 <u>Projected 1980:</u> 56,500	<u>Number occupied units:</u> 13,373 <u>Renter occupied:</u> 5,962 <u>Vacant year-round:</u> 1,413 <u>For sale:</u> 179 <u>For rent:</u> 958 <u>Median price:</u> No data <u>Median rent:</u> \$70	<u>Elementary Schools:</u> Number: 18 Enrollment capacity: 7,000 1975 enrollment: 7,792 1980 projection: 8,690 <u>Junior High Schools:</u> Number: 4 Enrollment capacity: 3,000 1975 enrollment: 3,008 1980 projection: 3,350 <u>Secondary Schools:</u> Number: 4 Enrollment capacity: 4,000 1975 enrollment: 4,684 1980 projection: 5,220 <u>Colleges:</u> Number: 1 Louisiana State University at Alexandria 1975 enrollment: 1,262 1980 projection: 1,420	<u>Doctors:</u> Total number: 124 Doctors/population: 1/409 <u>Dentists:</u> Total number: 41 Dentists/population: 1/1,236 <u>Hospitals:</u> Total Number: 3 Total beds: 855 Intensive care units: 3 Coronary care units: 1 Planned expansion: expand lab and physical therapy units and construct outpatient facility	<u>Parks:</u> 10 <u>Athletic fields:</u> 19 <u>Tennis courts:</u> 17 <u>Golf courses:</u> 2 (includes miniature course) <u>Zoo:</u> 1 <u>Swimming pools:</u> 7	<u>Electric Power:</u> Source: City of Alexandria Type: Thermoelectric power; 185-MW capacity, 115-MW demand Future plants: No data <u>Sewage Disposal:</u> Number of plants: 1 Type of treatment: Extended aeration Flow capacity: 53,000,000 liters/day (14,000,000 gal/day) Actual flow: <26,500,000 liters/day (7,000,000 gal/day) <u>Heating Fuel:</u> Type available: Natural gas Consumption: 25,998 m³/hr (22,035,000 ft³/day) Adequacy of service: Good <u>Water Supply:</u> Source: Deepwell system with treatment plant Adequacy of service: Good Expansion plans: New mains to outskirts and 3,785,000-liter (1,000,000-gal) storage facility	<u>Nonpublic Schools:</u> Elementary: None Junior High: 5 1975 enrollment: 1,464 Secondary: 3 1975 enrollment: 972
<u>Name:</u> Natchitoches <u>Location:</u> 31°46'N, 93°05'W; Natchitoches Parish, Louisiana	<u>Census 1970:</u> 15,974 <u>Estimated 1976:</u> 17,250 <u>Projected 1980:</u> 18,100	<u>Number occupied units:</u> 4,245 <u>Renter occupied:</u> 1,737 <u>Vacant year-round:</u> 322 <u>For sale:</u> 34 <u>For rent:</u> 160 <u>Median price:</u> No data <u>Median rent:</u> \$74	<u>Elementary Schools:</u> Number: 4 Enrollment capacity: No data 1975 enrollment: 2,335 1980 projection: 2,450 <u>Junior High Schools:</u> Number: 3 Enrollment capacity: No data 1975 enrollment: 744 1980 projection: 780 <u>Secondary Schools:</u> Number: 1 Enrollment capacity: 1,200 1975 enrollment: 1,410 1980 projection: 1,480 <u>Colleges:</u> Number: 1 Northwestern State University 1975 enrollment: 6,598 1980 projection: 6,920	<u>Doctors:</u> Total number: 16 Doctors/population: 1/1,078 <u>Dentists:</u> Total number: 7 Dentists/population: 1/2,464 <u>Hospitals:</u> Total number: 1 Total beds: 120 Intensive care units: 1 Coronary care units: None Planned expansion: No data	<u>Parks:</u> 8 <u>Athletic fields:</u> 4 <u>Tennis courts:</u> 9 <u>Golf course:</u> 1 <u>Swimming pools:</u> 3 <u>Wading pool:</u> 1	<u>Electric Power:</u> Source: LAMCO Generating Plant and Central Louisiana Electric Co. (CLECO) Type: No data; 50-MW plant capacity Future plants: No data <u>Sewage Disposal:</u> Number of plants: 1 Type of treatment: Biological filter Flow capacity: For population of 35,000 Actual flow: 11,350,000 liters/day (3,000,000 gal/day) <u>Heating Fuel:</u> Type available: Natural gas Consumption: 6,090 m³/hr (5,162,000 ft³/day) Adequacy of service: Good <u>Water Supply:</u> Source: Sibley Lake with primary and secondary treatment Adequacy of service: Good Expansion plans: No data	<u>Nonpublic Schools:</u> Elementary: None Junior High: None Secondary: 3 1975 Enrollment: 930 Maximum enrollment capacity for combined public elementary and junior high schools is approximately 3,300 students. A new public high school is scheduled for construction in 1978 or 1979.

## B. URBAN AREAS (Continued)

TABLE B1. URBAN AREAS (Continued)

NAME AND LOCATION	POPULATION	HOUSING AVAILABILITY	EDUCATIONAL FACILITIES	MEDICAL FACILITIES	RECREATION FACILITIES	PUBLIC UTILITIES	REMARKS
<b>Name:</b> Pineville	<b>Census 1970:</b> 9,643	<b>Number occupied units:</b> 3,164 <b>Renter occupied:</b> 1,178	<b>Elementary Schools:</b> Number: 8 Enrollment capacity: 2,500 1975 enrollment: 3,446 1980 projection: 3,720	<b>Doctors:</b> Total number: 33 Doctors/population: 1/358	<b>Parks:</b> 5 <b>Athletic fields:</b> 3 <b>Tennis courts:</b> No data <b>Golf course:</b> 1 <b>Swimming pool:</b> 1	<b>Electric Power:</b> Source: CLECO Type: No data; 14.2-MW peak demand Future plants: No data <b>Sewage Disposal:</b> Number of plants: 1 Type of treatment: Oxidation pond Flow capacity: 11,350,000 liters/day (3,000,000 gal/day) Actual flow: No data <b>Heating Fuel:</b> Type available: Natural gas Consumption: 8,068 m <sup>3</sup> /hr (6,838,000 ft <sup>3</sup> /day) Adequacy of service: Good <b>Water Supply:</b> Source: Deepwell system Adequacy of service: Good Expansion plans: No data	<b>Nonpublic Schools:</b> Nursery and kindergarten: 1 1975 enrollment: 68 Elementary: None Junior High: None Secondary: None
<b>Location:</b> 31°20'N, 92°26'W; Rapides Parish, Louisiana	<b>Estimated 1976:</b> 11,800 <b>Projected 1980:</b> 12,500	<b>Vacant year-round:</b> 240 <b>For sale:</b> 31 <b>For rent:</b> 166 <b>Median price:</b> \$7,000 <b>Median rent:</b> \$54	<b>Junior High Schools:</b> Number: 1 Enrollment capacity: 1,000 1975 enrollment: 675 1980 projection: 720 <b>Secondary Schools:</b> Number: 2 Enrollment capacity: 2,000 1975 enrollment: 1,147 1980 projection: 1,220 <b>Colleges:</b> Number: 1 Louisiana College 1975 enrollment: 1,121 1980 projection: 1,190	<b>Dentists:</b> Total number: 10 Dentists/population: 1/1,180 <b>Hospitals:</b> Total number: 3 Total beds: 3,821 Intensive care units: 1 Coronary care units: None Planned expansion: No data			
<b>Name:</b> Leesville	<b>Census 1970:</b> 8,928	<b>Number occupied units:</b> 2,725 <b>Renter occupied:</b> 1,178	<b>Elementary Schools:</b> Number: 3 Enrollment capacity: 2,875 1975 enrollment: 2,958 1980 projection: 2,960	<b>Doctors:</b> Total number: 7 Doctors/population: 1/1,166	<b>Parks:</b> 2 <b>Athletic fields:</b> 3 <b>Tennis court:</b> 1 <b>Golf course:</b> 1 <b>Swimming pool:</b> 1	<b>Electric Power:</b> Source: CLECO Type: No data; 9.9-MW peak demand Future plants: No data <b>Sewage Disposal:</b> Number of plants: 1 Type of treatment: Oxidation pond Flow capacity: No data Actual flow: 5,675,000 liters/day (1,500,000 gal/day) <b>Heating Fuel:</b> Type available: Natural gas Consumption: 1,457 m <sup>3</sup> /hr (1,235,000 ft <sup>3</sup> /day) Adequacy of service: Good <b>Water Supply:</b> Source: CLECO Adequacy of service: Good Expansion plans: No data	A new public elementary school is scheduled for completion in September 1978; its capacity will be 600 students.
<b>Location:</b> 31°09'N, 93°16'W; Vernon Parish, Louisiana	<b>Estimated 1976:</b> 8,160 <b>Projected 1980:</b> 7,700	<b>Vacant year-round:</b> 289 <b>For sale:</b> 14 <b>For rent:</b> 199 <b>Median price:</b> \$18,000 <b>Median rent:</b> \$64	<b>Junior High Schools:</b> Number: 1 Enrollment capacity: 900 1975 enrollment: 715 1980 projection: 720 <b>Secondary Schools:</b> Number: 3 Enrollment capacity: 1,800 1975 enrollment: 2,253 1980 projection: 2,250 <b>Colleges:</b> Number: 1 Northwestern State University (Fort Polk Campus) Approximate enrollment capacity: 1,000	<b>Dentists:</b> Total number: 3 Dentists/population: 1/2,720 <b>Hospitals:</b> Total number: 2 Total beds: 82 Intensive care units: None Coronary care units: None Planned expansion: No data			
<b>Name:</b> DeRidder	<b>Census 1970:</b> 8,030	<b>Number occupied units:</b> 2,515 <b>Renter occupied:</b> 962	<b>Elementary Schools:</b> Number: 4 Enrollment capacity: 2,450 1975 enrollment: 2,491 1980 projection: 2,606	<b>Doctors:</b> Total number: 12 Doctors/population: 1/850	<b>Parks:</b> 6 <b>Athletic fields:</b> 9 <b>Tennis courts:</b> 3 <b>Golf course:</b> 1 <b>Horseback riding area:</b> 1 <b>Swimming pool:</b> 1	<b>Electric Power:</b> Source: CLECO Type: No data; 12.2-MW peak demand Future plants: No data <b>Sewage Disposal:</b> Number of plants: 1 Type of treatment: Imhoff tanks and trickling filter Flow capacity: 2,840,000 to 3,785,000 liters/day (750,000 to 1,000,000 gal/day) Actual flow: No data <b>Heating Fuel:</b> Type available: Natural gas Consumption: 1,186 m <sup>3</sup> /hr (1,005,000 ft <sup>3</sup> /day) Adequacy of service: Good <b>Water Supply:</b> Source: Well system Adequacy of service: Good Expansion plans: No data	<b>Nonpublic Schools:</b> Elementary: 1 1975 enrollment: 36 Junior High: None Secondary: None A new public elementary school is scheduled for construction in 1978.
<b>Location:</b> 30°51'N, 93°17'W; Beauregard Parish, Louisiana	<b>Estimated 1976:</b> 10,200 <b>Projected 1980:</b> 10,700	<b>Vacant year-round:</b> 384 <b>For sale:</b> 28 <b>For rent:</b> 290 <b>Median price:</b> \$15,000 <b>Median rent:</b> \$60	<b>Junior High Schools:</b> Number: 1 Enrollment capacity: 750 1975 enrollment: 702 1980 projection: 740 <b>Secondary Schools:</b> Number: 2 Enrollment capacity: 1,500 1975 enrollment: 1,797 1980 projection: 1,880 <b>Colleges:</b> None	<b>Dentists:</b> Total number: 4 Dentists/population: 1/2,250 <b>Hospitals:</b> Total number: 1 Total beds: 88 Intensive care units: None Coronary care units: None Planned expansion: No data			
<b>Name:</b> Oakdale	<b>Census 1970:</b> 7,301	<b>Number occupied units:</b> 2,250 <b>Renter occupied:</b> 821	<b>Elementary Schools:</b> Number: 1 Enrollment capacity: 1,100 1975 enrollment: 1,166 1980 projection: 1,560	<b>Doctors:</b> Total number: 7 Doctors/population: 1/919	<b>Parks:</b> 3 <b>Athletic fields:</b> 2 <b>Tennis courts:</b> No data <b>Golf courses:</b> No data <b>Swimming pool:</b> 1	<b>Electric Power:</b> Source: CLECO Type: No data; 607-MW peak demand Future plants: No data <b>Sewage Disposal:</b> Number of plants: 1 Type of treatment: Oxidation pond Flow capacity: No data Actual flow: No data <b>Heating Fuel:</b> Type available: Natural gas Consumption: 3,398 m <sup>3</sup> /hr (2,880,000 ft <sup>3</sup> /day) Adequacy of service: Good <b>Water Supply:</b> Source: Well system Adequacy of service: Good Expansion plans: No data	
<b>Location:</b> 30°49'N, 92°40'W; Allen Parish, Louisiana	<b>Estimated 1976:</b> 6,430 <b>Projected 1980:</b> 8,600	<b>Vacant year-round:</b> 139 <b>For sale:</b> 9 <b>For rent:</b> 83 <b>Median price:</b> \$8,100 <b>Median rent:</b> \$42	<b>Junior High Schools:</b> Number: 1 Enrollment capacity: 500 1975 enrollment: 654 1980 projection: 880 <b>Secondary Schools:</b> Number: 1 Enrollment capacity: 700 1975 enrollment: 673 1980 projection: 900 <b>Colleges:</b> None	<b>Dentists:</b> Total number: 3 Dentists/population: 1/2,143 <b>Hospitals:</b> Total number: 1 Total beds: 61 Intensive care units: None Coronary care units: None Planned expansion: No data			
<b>Name:</b> England Air Force Base	<b>Census 1970:</b> 3,715	<b>Number occupied units:</b> 629 <b>Renter occupied:</b> 598	<b>Elementary Schools:</b> None <b>Junior High Schools:</b> None <b>Secondary Schools:</b> None <b>Colleges:</b> None	<b>Doctors:</b> Total number: 10 Doctors/population: 1/460	<b>Parks:</b> 5 <b>Athletic fields:</b> 5 <b>Tennis courts:</b> 2 <b>Golf course:</b> 1 <b>Swimming pools:</b> 2 <b>Skeet, rifle, and pistol range:</b> 1 <b>Horseback trail:</b> 1	<b>Electric Power:</b> Source: CLECO Type: No data Future plants: No data <b>Sewage Disposal:</b> Number of plants: 1 Type of treatment: Oxidation pond Flow capacity: At least 8,300,000 liters/day (2,200,000 gal/day) Actual flow: 4,150,000 liters/day (1,100,000 gal/day) <b>Heating Fuel:</b> Type available: Natural gas Consumption: 1,215 m <sup>3</sup> /hr (1,030,000 ft <sup>3</sup> /day) Adequacy of service: Good <b>Water Supply:</b> Source: City of Alexandria Adequacy of service: Good Expansion plans: No data	<b>Nonpublic Schools:</b> Elementary: 1 1975 enrollment: 510 Capacity: 725 Junior High: None Secondary: None
<b>Location:</b> 31°20'N, 92°33'W; Rapides Parish, Louisiana	<b>Estimated 1976:</b> 4,600 <b>Projected 1980:</b> 5,200	<b>Vacant year-round:</b> 7 <b>For sale:</b> None <b>For rent:</b> None		<b>Dentists:</b> Total number: 8 Dentists/population: 1/575 <b>Hospitals:</b> Total number: 1 Total beds: 30 Intensive care units: None Coronary care units: None Planned expansion: No data			
<b>Name:</b> DeQuincy	<b>Census 1970:</b> 3,448	<b>Number occupied units:</b> 1,152 <b>Renter occupied:</b> 320	<b>Elementary Schools:</b> Number: 1 Enrollment capacity: 1,000 1975 enrollment: 787 1980 projection: 850	<b>Doctors:</b> Total number: 2 Doctors/population: 1/1,750	<b>Parks:</b> 3 <b>Athletic fields:</b> 6 <b>Tennis court:</b> 1 <b>Golf courses:</b> No data <b>Swimming pools:</b> 2	<b>Electric Power:</b> Source: CLECO Type: No data; 3.8-MW peak demand Future plants: No data <b>Sewage Disposal:</b> Number of plants: 1 Type of treatment: Oxidation pond Flow capacity: No data Actual flow: No data <b>Heating Fuel:</b> Type available: Natural gas Consumption: 1,577 m <sup>3</sup> /hr (1,337,000 ft <sup>3</sup> /day) Adequacy of service: Good <b>Water Supply:</b> Source: CLECO Adequacy of service: Good Expansion plans: No data	
<b>Location:</b> 30°27'N, 93°26'W; Calcasieu Parish, Louisiana	<b>Estimated 1976:</b> 3,500 <b>Projected 1980:</b> 3,800	<b>Vacant year-round:</b> 104 <b>For sale:</b> 17 <b>For rent:</b> 47 <b>Median price:</b> \$5,900 <b>Median rent:</b> \$44	<b>Junior High Schools:</b> Number: 1 Enrollment capacity: 500 1975 enrollment: 468 1980 projection: 510 <b>Secondary Schools:</b> Number: 1 Enrollment capacity: 560 1975 enrollment: 467 1980 projection: 510 <b>Colleges:</b> None	<b>Dentists:</b> Total number: 2 Dentists/population: 1/1,750 <b>Hospitals:</b> Total number: 1 Total beds: 30 Intensive care units: None Coronary care units: None Planned expansion: No data			
<b>Name:</b> Mamou	<b>Census 1970:</b> 3,275	<b>Number occupied units:</b> 1,159 <b>Renter occupied:</b> 411	<b>Elementary Schools:</b> Number: 1 Enrollment capacity: 650 1975 enrollment: 619 1980 projection: 670	<b>Doctors:</b> Total number: 8 Doctors/populations: 1/450	<b>Parks:</b> 2 <b>Athletic fields:</b> 2 <b>Tennis courts:</b> No data <b>Golf courses:</b> No data	<b>Electric Power:</b> Source: CLECO Type: No data; 4.0-MW peak demand Future plants: No data <b>Sewage Disposal:</b> Number of plants: 1 Type of treatment: No data Flow capacity: No data Actual flow: No data <b>Heating Fuel:</b> Type available: Natural gas Consumption: 1,377 m <sup>3</sup> /hr (1,167,000 ft <sup>3</sup> /day) Adequacy of service: Good <b>Water Supply:</b> Source: Well system Adequacy of service: Good Expansion plans: Update and improve water system	
<b>Location:</b> 30°38'N, 92°25'W; Evangeline Parish, Louisiana	<b>Estimated 1976:</b> 3,600 <b>Projected 1980:</b> 3,900	<b>Vacant year-round:</b> 58 <b>For sale:</b> 12 <b>For rent:</b> 13 <b>Median price:</b> \$5,000 <b>Median rent:</b> \$32	<b>Junior High Schools:</b> Number: 1 Enrollment capacity: 625 1975 enrollment: 493 1980 projection: 530 <b>Secondary Schools:</b> Number: 1 Enrollment capacity: 375 1975 enrollment: 338 1980 projection: 370 <b>Colleges:</b> None	<b>Dentists:</b> Total number: 1 Dentists/populations: 1/3,600 <b>Hospitals:</b> Total number: 1 Total beds: 74 Intensive care units: 1 Coronary care units: None Planned expansion: No data			

B. URBAN AREAS (Continued)

TABLE B1. URBAN AREAS (Continued)

NAME AND LOCATION	POPULATION	HOUSING AVAILABILITY	EDUCATIONAL FACILITIES	MEDICAL FACILITIES	RECREATION FACILITIES	PUBLIC UTILITIES	REMARKS
<u>Name:</u> Many	<u>Census 1970:</u> 3,112	<u>Number occupied units:</u> 1,002 <u>Renter occupied:</u> 355	<u>Elementary Schools:</u> <u>Number:</u> 1 Enrollment capacity: 648 1975 enrollment: 621 1980 projection: 650	<u>Doctors:</u> Total number: 8 Doctors/population: 1/418	<u>Park:</u> 1 <u>Athletic fields:</u> 2 <u>Tennis courts:</u> No data <u>Golf courses:</u> No data <u>Raceway:</u> 1	<u>Electric Power:</u> Source: CLECO Type: No data; 9.0-MW peak demand Future plants: No data <u>Sewage Disposal:</u> Number of plants: 2 Type of treatment: Oxidation pond Flow capacity: No data Actual flow: No data <u>Heating Fuel:</u> Type available: Natural gas Consumption: 1,392 m <sup>3</sup> /hr (1,180,000 ft <sup>3</sup> /day) Adequacy of service: Good <u>Water Supply:</u> Source: Deepwell system Adequacy of service: Good Expansion plans: Use Toledo Bend Reservoir as source	<u>Nonpublic Schools:</u> Elementary: None Junior High: 1 1975 enrollment: 102 A new public high school is planned for construction in 1978 or 1979.
<u>Location:</u> 31°34'N, 93°29'W; Sabine Parish, Louisiana	<u>Estimated 1976:</u> 3,340 <u>Projected 1980:</u> 3,500	<u>Vacant year-round:</u> 147 <u>For sale:</u> 17 <u>For rent:</u> 45 <u>Median price:</u> \$8,100 <u>Median rent:</u> \$44	<u>Junior High Schools:</u> Number: 1 Enrollment capacity: 725 1975 enrollment: 471 1980 projection: 490 <u>Secondary Schools:</u> Number: 1 Enrollment capacity: 501 1975 enrollment: 492 1980 projection: 520 <u>Colleges:</u> None	<u>Dentists:</u> Total number: 3 Dentists/population: 1/1,113 <u>Hospitals:</u> Total number: 2 Total beds: 78 Intensive care units: None Coronary care units: None Planned expansion: No data			
<u>Name:</u> Kinder	<u>Census 1970:</u> 2,307	No data	<u>Elementary Schools:</u> <u>Number:</u> 1 Enrollment capacity: 650 1975 enrollment: 686 1980 projection: 710	<u>Doctors:</u> Total number: 3 Doctors/population: 1/840	<u>Parks:</u> No data <u>Athletic fields:</u> 2 <u>Tennis courts:</u> No data <u>Golf courses:</u> No data	<u>Electric Power:</u> Source: CLECO Type: No data; 2.5-MW peak demand Future plants: No data <u>Sewage Disposal:</u> Number of plants: 1 Type of treatment: Oxidation pond Flow capacity: No data Actual flow: 114,000 liters/day (30,000 gal/day) <u>Heating Fuel:</u> Type available: Natural gas Consumption: 415 m <sup>3</sup> /hr (352,000 ft <sup>3</sup> /day) Adequacy of service: Fair, using entire allotment <u>Water Supply:</u> Source: Well system Adequacy of service: Good Expansion plans: Additional supply and storage, and larger mains	
<u>Location:</u> 30°09'N, 92°51'W; Allen Parish, Louisiana	<u>Estimated 1976:</u> 2,520 <u>Projected 1980:</u> 2,600		<u>Junior High Schools:</u> None <u>Secondary Schools:</u> Number: 2 Enrollment capacity: 650 1975 enrollment: 632 1980 projection: 650 <u>Colleges:</u> None	<u>Dentists:</u> Total number: 2 Dentists/population: 1/1,260 <u>Hospitals:</u> Total number: 1 Total beds: 55 Intensive care units: None Coronary care units: None Planned expansion: No data			

C. PORTS

There are four ports within a 161-km (100-mile) radius of the cantonment areas. Three are located in the State of Texas and one is located in the State of Louisiana. They are, respectively, the Ports of Beaumont, Orange, Port Arthur, and Lake Charles. The Ports of Beaumont, Orange, and Port Arthur are located 113 to 161 km (70 to 100 miles) southwest of the cantonment areas and the Port of Lake Charles is between 89 and 105 km (55 and 65 miles) due south. The ports are interconnected by the Gulf Intracoastal Waterway and have two entrances from the Gulf of Mexico. The Sabine Pass channel provides access to the Ports of Port Arthur, Beaumont, and Orange. To the east, the Calcasieu Pass channel provides access to the Port of Lake Charles. Data on the type, condition, and facilities of each port are presented in Table C1.

TABLE C1. PORTS

NAME AND LOCATION	TYPE, GENERAL CONDITION, AND CARGO HANDLING*	FACTORS LIMITING LARGEST VESSEL	HYDROLOGIC CONDITIONS AND UNUSUAL GEOPHYSICAL CONDITIONS	PIERS AND WHARVES**	MECHANICAL HANDLING FACILITIES	STORAGE FACILITIES	CLEARANCE FACILITIES	REMARKS
<u>Name:</u> Port of Lake Charles	<u>Type:</u> Improved natural and dredged channel <u>Condition:</u> Good	<u>Approaches:</u> Minimum depth: 12.8 m (42 ft) Minimum width: 244 m (800 ft) <u>Anchorage:</u> Minimum depth at mean low Gulf (mlg): 12 m (40 ft) Minimum width: 244 m (800 ft) <u>Alongside Berths:</u> Minimum depth at mlg: 24 m (8 ft) Maximum length: 488 m (1,600 ft) Minimum clearance: 0.6 m (2 ft)	<u>Tidal Ranges:</u> Mean range of tide (Mouth of Calcasieu River), 0.4 m (1.3 ft); diurnal range of tide (Mouth of Calcasieu River), 0.6 m (2 ft); mean tidal range (Lake Charles), 0.15 m (0.5 ft) <u>Unusual Geophysical Conditions:</u> Northerly winter storms can depress Gulf 0.3 m or more (1 ft+) below mean sea level; hurricanes may raise the Gulf level 4 m (13 ft)	<u>Number:</u> 53 <u>Uses:</u> Handling petroleum crude, petroleum products, chemicals, shell, and other miscellaneous commodities <u>Types of Construction:</u> Timber piles, steel sheet piles, timber and concrete decks, and natural banks <u>Berths:</u> No data on number; lengths, 16 to 488 m (52 to 1,600 ft); depths, 2.4 to 12 m (8 to 40 ft); height of decks, 0.6 to 5.2 m (2 to 17 ft)	<u>Cranes and Derricks:</u> 1 crane, 45 MT (50 ST), 21-m (70-ft) boom; 1 crane, 36 MT (40 ST), 24-m (80-ft) boom; 2 cranes, 36 MT (40 ST), 21-m (70-ft) booms; 2 cranes, 4.5 MT (5 ST), 11-m (35-ft) booms <u>Other Equipment:</u> Mast and boom derricks, pipeline arms, conveyor systems, crawler cranes, front-end loaders, bulldozer, loading and receiving hoppers, and stiff-leg derricks	<u>Covered Storage:</u> Chemicals, 10 storage tanks, 389,941 bbl; 17 storage tanks, 58,984,000 liters (15,582,000 gal); 5 storage tanks, 39,400 MT (43,400 ST). Other commodities, 22 warehouses, 39,703 m <sup>2</sup> (427,200 ft <sup>2</sup> ); 4 transit sheds, 38,643 m <sup>2</sup> (415,800 ft <sup>2</sup> ); 16 silos, 106,475 bbl; 9 silos, 36,650 MT (40,400 ST); 7 storage tanks, 53,000 bbl, 1 storage tank, 3,890,000 liters (1,027,770 gal); 3 storage tanks, 1,089 MT (1,200 ST); 1 shed, 6,227 m <sup>2</sup> (67,000 ft <sup>2</sup> ) <u>Open Storage:</u> Shell, 2 areas, 113,400 MT (125,000 ST). Other commodities, 3 areas, 199,136 MT (219,510 ST); 1 area, 3,717 m <sup>2</sup> (40,000 ft <sup>2</sup> ); 3 storage bins, 21,772 MT (24,000 ST); public storage, 10,688 m <sup>2</sup> (115,000 ft <sup>2</sup> ) <u>Refrigerated Storage:</u> None <u>Petroleum Products Storage:</u> 293 storage tanks, 13,147,992 bbl	<u>Railroads:</u> Kansas City Southern Railway has direct lines to the Fort Polk cantonment areas <u>Roads:</u> U. S. Highway 90 and Interstate Highways 10 and 210 connect with roads to the cantonment areas	7 additional structures are used for mooring and repair services.
<u>Name:</u> Port of Port Arthur	<u>Type:</u> Improved natural and dredged channel <u>Condition:</u> Good <u>Cargo Handling:</u> 27,838,964 MT (30,687,203 ST)	<u>Approaches:</u> Minimum depth: 12.8 m (42 ft) Minimum width: 244 m (800 ft) <u>Anchorage:</u> Minimum depth at mlg: 6.7 m (22 ft) Maximum width: 457 m (1,500 ft) <u>Alongside Berths:</u> Minimum depth at mlg: 0.6 m (2 ft) Maximum length: 915 m (3,000 ft) Minimum clearance: 1.2 m (4 ft)	<u>Tidal Ranges:</u> Mean range of tide (Sabine Pass Entrance), 0.5 m (1.5 ft); mean range (Port Arthur), 0.3 m (1.0 ft) <u>Unusual Geophysical Conditions:</u> Northerly winter winds have depressed water surface 1 m (3.4 ft) below mean sea level; tropical depressions have raised the water surface 2.4 m (8 ft)	<u>Number:</u> 35 <u>Uses:</u> Handling petroleum crude, petroleum products, oil drilling supplies, and other miscellaneous commodities <u>Types of Construction:</u> Timber and concrete piles, steel sheet piles, timber and concrete decks, and natural banks <u>Berths:</u> No data on number; lengths, 7 to 915 m (24 to 3,000 ft); depths, 0.6 to 11.9 m (2 to 39 ft); height of decks, 1.2 to 4.8 m (4 to 15.7 ft)	<u>Cranes and Derricks:</u> 1 derrick,†† 227 MT (250 ST), barge-mounted; 1 derrick,†† 9/45 MT (10/50 ST), 30-m (100-ft) boom; 1 crane, 45 MT (50 ST), 38-m (125-ft) boom, barge-mounted; 1 crane, 32 MT (35 ST), 26-m (85-ft) boom, barge-mounted; 1 crane, 23 MT (25 ST), 26-m (85-ft) boom, barge-mounted; 1 electric crane, 32/68 MT (35/75 ST) at 30-m (100-ft) and 23-m (75-ft) reaches; 1 crane,†† 36 MT (40 ST), 23-m (75-ft) boom; 1 crane,†† 32 MT (35 ST), 23-m (75-ft) boom; 1 crane,†† 45 MT (50 ST), 15-m (50-ft) boom; 1 crane,†† 23 MT (25 ST), 18-m (60-ft) boom; 1 crane,†† 23 MT (25 ST), 27-m (90-ft) boom; 1 crane,†† 14 MT (15 ST), 18-m (60-ft) boom; 1 crane,†† 4 MT (4.5 ST), 18-m (60-ft) boom; 1 crane, 32 MT (35 ST), 30-m (100-ft) boom <u>Other Equipment:</u> Mast and boom, and stiff-leg derricks, traveling, crawler, and truck cranes, conveyor systems, and forklifts	<u>Covered Storage:</u> Chemicals, 8 storage tanks, 359 MT (396 ST); 4 storage tanks, 4,278 liters (1,130 gal). Other commodities, 10 storage tanks, 11,728 bbl; 7 storage tanks, 100,431 m <sup>2</sup> (2,850,000 bu); 1 grain elevator, 17,620 m <sup>2</sup> (138,900 ft <sup>2</sup> ); 4 storage sheds, 12,909 m <sup>2</sup> (138,900 ft <sup>2</sup> ); 1 transit shed, 7,552 m <sup>2</sup> (81,260 ft <sup>2</sup> ) <u>Open Storage:</u> Other commodities, 2 areas, 85,254 MT (105,000 ST); public storage, 9,294 m <sup>2</sup> (100,000 ft <sup>2</sup> ) <u>Refrigerated Storage:</u> None <u>Petroleum Products Storage:</u> 1,070 storage tanks, 25,922,968 bbl; 1 warehouse, 22,305 m <sup>2</sup> (240,000 ft <sup>2</sup> ); 11 transit sheds, 16,608 m <sup>2</sup> (178,700 ft <sup>2</sup> )	<u>Railroads:</u> Kansas City Southern Railway has direct lines to the cantonment areas <u>Roads:</u> Texas State Highway 87 connects with roads to the cantonment areas	22 additional structures are used for mooring and repair services.

\* From 1976 Waterborne Commerce of the United States.  
\*\* Does not include mooring and repair docks.  
† Tidal ranges are from mean low Gulf (mlg) to mean high Gulf (mhg).  
†† Equipment also used at Ports of Beaumont and Orange.

C. PORTS (Continued)

TABLE C1. PORTS (Continued)

NAME AND LOCATION	TYPE, GENERAL CONDITION, AND CARGO HANDLING*	FACTORS LIMITING LARGEST VESSEL	HYDROLOGIC CONDITIONS AND UNUSUAL GEOPHYSICAL CONDITIONS	PIERS AND WHARVES**	MECHANICAL HANDLING FACILITIES	STORAGE FACILITIES	CLEARANCE FACILITIES	REMARKS
<u>Name:</u> Port of Orange	<u>Type:</u> Improved natural and dredged channel	<u>Approaches:</u> See Port Arthur	<u>Tidal Ranges:</u> † Mean range of tide (Orange), 0.2 m (0.5 ft)	<u>Number:</u> 15 <u>Uses:</u> Handling petroleum crude, petrochemicals, shell, crushed stone, and other miscellaneous commodities	<u>Cranes and Derricks:</u> 1 derrick, 122 MT (135 ST), 64-m (210-ft) boom, barge-mounted; 1 crane, 54 MT (60 ST), 37-m (120-ft) boom, barge-mounted; 1 crane, 36 MT (40 ST), 30-m (100-ft) boom, barge-mounted; 1 crane,†† 36 MT (40 ST), 21-m (70-ft) boom; 1 crane,†† 9 MT (10 ST), 18-m (60-ft) boom; 1 crane,†† 9 MT (10 ST), 15-m (50-ft) boom. (See Port Arthur.)	<u>Covered Storage:</u> Other commodities, 7 transit sheds, 22,084 m² (237,622 ft²); 1 general merchandise warehouse, 1,654 m² (17,800 ft²); 1 diesel fuel storage tank, 238 bbl; 3 storage silos, 221,644 bbl <u>Open Storage:</u> Crushed stone and shell, 1 area 15,303 m³ (20,000 yd³). Other commodities, 1 storage area <u>Refrigerated Storage:</u> None <u>Petroleum Products Storage:</u> 32 storage tanks, 337,390 bbl	<u>Railroads:</u> There are no direct lines to the cantonment areas <u>Roads:</u> U. S. Highway 90 and Interstate Highway 10 connect with roads to the cantonment areas	20 additional structures are used for mooring and repair services.
<u>Location:</u> 30°03'N, 93°44'W; Orange, Texas	<u>Condition:</u> Good <u>Cargo Handling:</u> 890,516 MT (981,626 ST)	<u>Anchorage:</u> None <u>Alongside Berths:</u> Minimum depth at mlg: 2.4 m (8 ft) Maximum length: 531 m (1,743 ft) Minimum clearance: 0.6 m (2 ft)	<u>Unusual Geophysical Conditions:</u> Similar to those at Port Arthur	<u>Types of Construction:</u> Timber piles, steel sheet piles, timber decks, and natural banks <u>Berths:</u> No data on number; lengths, 11 to 531 m (35 to 1,743 ft); depths, 2.4 to 9.1 m (8 to 30 ft); height of decks, 0.6 to 3.5 m (2 to 11.5 ft)	<u>Other Equipment:</u> Mast and boom, and stiff-leg derricks, mobile, crawler, and overhead cranes, front-end loader, loading and receiving hoppers, and conveyor systems			
<u>Name:</u> Port of Beaumont	<u>Type:</u> Improved natural and dredged channel	<u>Approaches:</u> See Port Arthur	<u>Tidal Ranges:</u> Mean range of tide (Beaumont), 0.2 m (0.5 ft)	<u>Number:</u> 46 <u>Uses:</u> Handling petroleum crude, petroleum products, chemicals, sulphur, grain, and other miscellaneous commodities	<u>Cranes and Derricks:</u> 1 derrick, 45/68 MT (50/75 ST), 70-m (230-ft) and 30-m (100-ft) booms, barge-mounted; 1 gantry crane, 54 MT (60 ST), 27-m (90-ft) boom and 3-m (10-ft) boom extension; 1 locomotive crane, 45/63 MT (50/70 ST), 21-m (70-ft) boom; 1 locomotive crane, 36 MT (40 ST), 23-m (75-ft) boom; 7 cranes, 45 MT (50 ST); 1 crane, 27 MT (30 ST); 1 crane, 20 MT (22 ST); 1 crane, 9 MT (10 ST). (See Ports Arthur and Orange.)	<u>Covered Storage:</u> Chemicals, sulphur, and grain, 3 storage tanks, 2,130,646 liters (562,857 gal); 16 storage tanks, 407,617 bbl; 5 storage tanks, 11,700 MT (12,900 ST); 8 storage tanks, 82,706 MT (81,400 LT); 1 bulk storage tank, 123,336 m³ (3,500,000 bu). Other commodities, 4 storage silos, 14,400 bbl; 32 storage tanks, 275,322 bbl; 5 transit sheds, 22,318 m² (240,100 ft²); 4 public warehouses, 34,588 m² (372,100 ft²) <u>Open Storage:</u> 1 storage bin, 58,561 m² (630,000 ft²); 8 public areas, 42,845 m² (460,924 ft²); 2 open areas, 39,022 m² (51,000 yd²) <u>Refrigerated Storage:</u> None <u>Petroleum Products Storage:</u> 700 storage tanks, 34,241,240 bbl; 1 warehouse, 3,079 m² (33,120 ft²)	<u>Railroads:</u> Kansas City Southern Railway has direct lines to the cantonment areas <u>Roads:</u> Texas State Highway 87, U. S. Highway 90, and Interstate Highway 10 connect with roads to the cantonment areas	15 additional structures are used for mooring and repair services.
<u>Location:</u> 30°02'N, 94°01'W; Beaumont, Texas	<u>Condition:</u> Good <u>Cargo Handling:</u> 39,860,859 MT (43,939,073 ST)	<u>Anchorage:</u> None <u>Alongside Berths:</u> Minimum depth at mlg: 0.9 m (3 ft) Maximum length: 445 m (1,460 ft) Minimum clearance: 0.9 m (3 ft)	<u>Unusual Geophysical Conditions:</u> Violent winds may accompany infrequent thunderstorms or tropical cyclones	<u>Types of Construction:</u> Timber and concrete piles, steel sheet piles, concrete encased H-piles, timber and concrete decks, and natural banks <u>Berths:</u> No data on number; lengths, 6 to 445 m (20 to 1,460 ft); depths, 0.9 to 12.2 m (3 to 40 ft); height of decks, 0.9 to 6.1 m (3 to 20 ft)	<u>Other Equipment:</u> Pipeline loading arms, mast and boom, and stiff-leg derricks, fork lifts, narrow-gage rail cars, conveyor systems, vessel loading spouts, inclined grain gallery, bulldozer, and dragline crane			

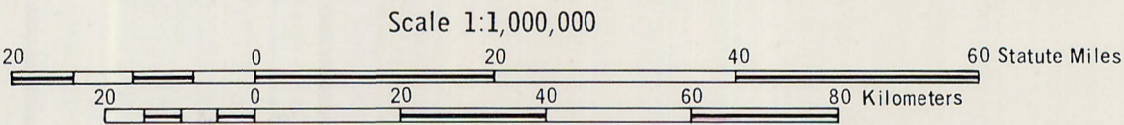
\* From 1976 **Waterborne Commerce of the United States**.

\*\* Does not include mooring and repair docks.

† Tidal ranges are from mean low Gulf (mlg) to mean high Gulf (mhg).

†† Equipment also used at Port of Beaumont.

# FORT POLK, LOUISIANA TERRAIN ANALYSIS



## OFF-POST FEATURES

- ★ Cantonment Areas
- Urban Areas
- ✈ Airfield
- ⚓ Ports

Prepared by the U. S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi, under the direction of the Terrain Analysis Center, U. S. Army Engineer Topographic Laboratories, Fort Belvoir, Virginia. January 1978.

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